

COMPUTER WORLD

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China repression threatens technology exchange, the Association for Computing Machinery warns Chinese scientists. Page 11.

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N&D returns to roots and finds them dyed blue as applications packages are wedded to DB2. Page 19.

Dbase eyed for wider Unix role

BY DOUGLAS BARNEY
CIVILIAN

TORRANCE, Calif. — Even while it strains to correct crucial Dbase IV flaws, Ashton-Tate Corp. is moving its controversial software to function as a development product on more than 20 Unix platforms.

The firm, which has long been working on ports to Digital Equipment Corp.'s VAX/VMS and Ultrix operating systems, is seeking to position Dbase as a key multitier database development system that adheres to the client-server model.

However, the company is not positioning Dbase as a key database engine. Instead, it will rely on more robust VMS and Unix

database management systems for data storage and manipulation, according to an Ashton-Tate source close to the project. Insiders view this strategy as an extension of the Ashton-Tate/Microsoft SQL Server offering. Company officials declined to comment.

Heading Ashton-Tate's list of targets are AT&T Unix System V, Release 3.0 (later moving to Release 4.0), The Santa Cruz Operation's Xenix, the University of California at Berkeley's Unix 4.2 and IBM's AIX. Vendors that have licensed and modified Unix will resell the product tailored for 20 specific Unix systems, sources said.

The strategy will be unveiled shortly, and products will emerge later this year, several Ashton-Tate sources confirmed.

The firm must correct an array of glitches in the 500,000 lines of code that make up Dbase IV before the system can be entirely migrated to other environments. Instead of porting the still-controversial Dbase IV 1.0,

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In a bargain-hunter's market, carriers whistle users' tune

BY ELISABETH HORWITZ
CIVILIAN

After years of having AT&T dictate their rates and services, Fortune 500 companies are finally enjoying the luxury of a buyer's market in which the former Ma Bell must offer huge discounts and special deals to hold its own against two strong contenders.

"Just because we have just negotiated a deal doesn't mean you can't do another," said John P. Compitello, vice-president of voice products and services at Goldman, Sachs & Co. At a recent meeting of the Association of Data Communications Users in Boston, Compitello exhorted his fellow communications managers to rush in on the "great leverage [that] large users have" by driving hard bargains with the

long-distance carriers.

In the past few months, a raft of large firms have done just that, signing multimillion-dollar, multiyear contracts with a number of carriers. *Continued on page 68*

Data-center showers may be halon option

BY MITCH BETTS
CIVILIAN

GREENBELT, Md. — Water sprinklers and carbon dioxide firefighting equipment may make a comeback in U.S. data centers now that halon-based systems are on the way out, said speakers at a government-sponsored meeting here last week on alternatives to halon systems.

Halon 1301, widely used in computer rooms since the 1970s, is being phased out by an international treaty because halon gas is considered a potent depleter of the Earth's protective ozone layer (CW, Oct. 3).

Denise L. Mauserell, a program manager at the U.S. Environmental Protection Agency, said the next revision to the U.S.-endorsed treaty — called the Montreal Protocol — is likely to phase out halon by the year 2005.

"There was a lot of gloom and doom at first, but now the shock has worn off, and people are taking a look at existing technology [options]," said John R. Johnson,

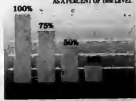
senior administrator of property insurance at GTE Service Corp. in Stamford, Conn.

The EPA has instituted a multifaceted program to deal with the halon problem, including a consortium created to search for substitute gases that are envi-

The halon phaseout

The Montreal Protocol, an international treaty to fight ozone depletion, is likely to require the phaseout of halon by the year 2005.

RECOMMENDED HALON PRODUCTION
AS A PERCENT OF 1986 LEVEL



ronmentally safe. However, that search will be lengthy and may not be successful, so the EPA and industry are examining existing technologies that can be used to protect computers from fire damage.

Continued on page 8

Coffee, tea and a sales pitch

BY RICHARD PASTORE
CIVILIAN

The power of airline reservation systems — significant enough to prompt the U.S. Department of Justice last month to block a planned merger of American Airlines' Sabre system with one operated by Delta Air Lines — goes far beyond ticket sales.

By exploiting sophisticated reservation system technology, the major airlines are engaged in a global chess match of selected discount-fare pricing. The airlines are also using customer identities, flight frequency and

destination patterns to target marketing efforts, personalize customer service and increase their customer base at the expense of their rivals. As a consequence, passenger privacy has gotten lost in the Bermuda Triangle of information exchange, and one major travel group charges that the airlines abuse the data (see

story page 14).

American Airlines' Advantage frequent-flyer database "allows us to recognize who our better customers are and then specifically target messages to them," said Frank DiNunzio, the carrier's managing director of marketing performance.

American's database is built from reservation data fed into it by the Sabre computer reservation system.

The case of John Cunningham is a typical example of how American uses passenger information to keep tabs on good customers. As vice-president of a Wall Street in-

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Quotable

"We were obliterated by the chip."

DONALD BURR
FOUNDER OF
PROLOGICPRESS

Describing how the major silicon and information technology to selectively lower firm and threat people's impact on savings.
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EXECUTIVE BRIEFING

■ Alternatives to halon are being sought as the industry prepares for an eventual phaseout of the popular but environmentally destructive firefighting agent. Experts say sprinklers and carbon dioxide will probably re-emerge in the short term and are urging computer makers to design equipment to resist water damage. Page 1.

■ The customer service approach isn't appropriate for the information systems organization of the 1990s. The traditional IS focus on pleasing the individual user or department often fails to address today's strategic business objectives, which involve the whole organization. IS needs to measure itself against broad corporate goals and apply industry standards, much as the accounting profession does. Page 45.

■ Airlines find competitive advantage in computer reservation system information. The data you routinely give the travel agent is increasingly used for target marketing, promotions and mailing-list sales. Some critics say the airlines go too far. Page 1.

■ VDT terminals should not be regulated in the workplace but should have safety guidelines if they are to be used by pregnant workers, says the conflicting message from a California state agency. The recommendations do little to resolve the continuing debate over VDT safety. Page 44.

■ Computer-aided design and engineering are driving forces in the technological evolution of a leading office furniture manufacturer. Herman Miller is among the companies that have found they can do much of that CAD/CAE work on PCs. Page 29.

■ There has been measurable progress toward the goal of multivendor connectivity for E-mail, at least as demonstrated to members of the Aerospace Industries Association. Page 33.

■ The planning is complete and the consolidation is under way as Illinois moves to integrate its agencies' voice and data communications over a high-speed, centrally managed digital network. Page 34.

■ Legislation to bar authors of computer viruses from working for state agencies for five years has been introduced in New York. The call for tougher measures comes as New York prepares to link 8,000 government computers. Page 4.

Stop, or you'll go blind! The health hazards of professional computing are front and center again. The weekly epic feature in a recent issue of *The New Yorker* magazine focused on the growing evidence tying VDT use to miscarriages. The U.S. House of Representatives heard testimony last month linking VDT use with crippling hand disorders. But 20 years ago, the concerns were different, especially after a National Bureau of Standards report declared that exposure to DP center noise could cause hearing loss. So we asked a veteran DPER if such allegations made back then were valid or just a lot of alarmist malarkey. He didn't answer.

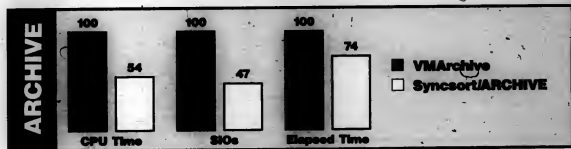
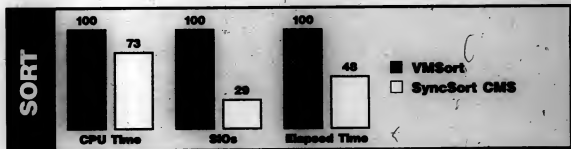
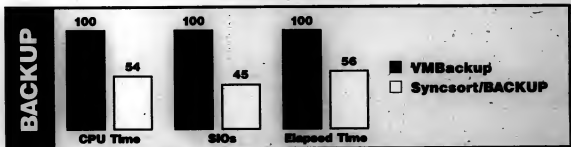


IS should break out of the customer service mold and embrace a partnership approach. Page 45.



MIT's Thomas Malone weighs the pros and cons of groupware. Page 42.

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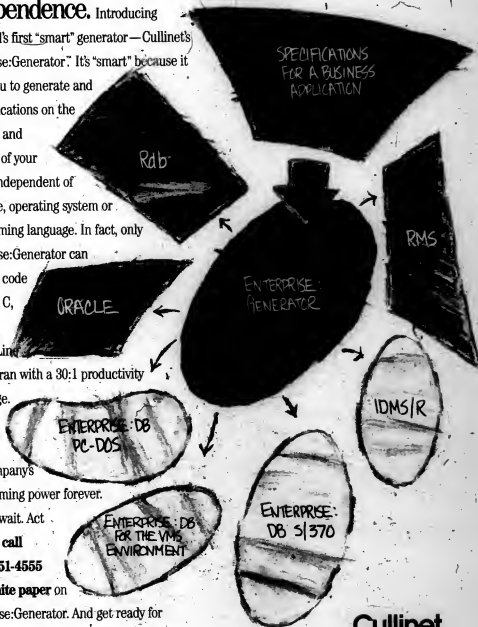
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NEWS SHORTS

Bush tops Sikes as FCC chairman

Alfred C. Sikes, as expected, was nominated by President Bush last week to be chairman of the Federal Communications Commission (FCC) for a five-year term (CW, June 26). Sikes, chief of the National Telecommunications and Information Administration, is expected to win Senate confirmation this summer.

New 3480 misses IBM deadline

As June drew to a close, so did IBM's chance to make good on a promise to introduce a spiffier 3480 tape drive with a 50% performance improvement and 500% denser cartridges. A spokeswoman said IBM—which had long said the drive would be introduced in the first half of 1989—would not meet its deadline. She would not say when the drive will be released.

Apple blames programmer

The crackdown on links of a well-known programmer for allegedly discussing confidential information via a bulletin board. David Ramsey, whose credits include a version of the MacPaint graphics program, was given his walking papers after he reportedly discussed unannounced products that he claimed had already been publicly mentioned by company officials.

DDS price cut set

AT&T said last week that it plans to slash 20% off its intercity 56K bit/sec. Dataphone Digital Service (DDS). AT&T also announced an option that provides three physically diverse DDS routes, targeting users who want to ensure that an outage will not disconnect both the primary and backup lines.

Aetna, Andersen, DEC form triad

In an interesting blend of corporate ventures, Aetna Life & Casualty Co., Andersen Consulting and Digital Equipment Corp. (DEC) announced last week that they are developing an investment management and accounting system for insurance companies, banks and investment houses. Andersen Consulting will develop the system with Aetna and will handle the marketing. Aetna, which will be the first user of Inven/1, will receive royalties on all sales. DEC will supply the hardware.

Toxics database goes on-line

The U.S. Environmental Protection Agency is releasing to the public the first national database to reveal which toxic chemicals have been released into the environment. The Toxic Chemical Release Inventory will be available on-line or on personal computer disks, magnetic tapes and compact disks from the National Library of Medicine's Toxnet system.

DEC and AT&T plan host-switch link

In the latest pairing of computer and private branch exchange vendors, DEC and AT&T last week revealed plans to build an interface between their respective systems for combined voice and data applications. The move came three months after DEC and Northern Telecom, Inc. released a similar link.

FCC approves Tariff 12 changes

The FCC last week approved revisions AT&T made to its first batch of Tariff 12 filings, which provide custom network services to such firms as General Electric Co., Ford Motor Co. and Du Pont Co. The revisions, which the FCC required to ensure that Tariff 12 is generally available to all users who request the service (CW, April 17), had been challenged by competitors.

Software firm's owner imprisoned

Zachary "Tex" Hiltbrecht, the 55-year-old founder of software firm Mandata Corp., was handed a 12- to 15-year prison term after being found guilty of 16 charges relating to cheating investors and employees of \$950,000.

Bergstein gives Andersen notice

Technical services head leaving to pursue range of new opportunities

BY ELLIS BOOKER
ON STAFF

CHICAGO — Andersen Consulting's top technologist, Melvyn E. Bergstein, submitted his letter of resignation last week and plans to look for new opportunities. *Computerworld* has learned.

For the past four years, Bergstein, 47, headed the firm's Technical Services Organization within its Management Information Consulting Practice, where his work included the design of large database management and data communications systems. Most recently, he directed the development of Foundation, Andersen's computer-aided software engineering product.

Bergstein was also the elected chairman of the consulting oversight committee within Andersen and one of the 24 elected members of its governing board of partners.



Bergstein leaving Andersen's Technical Services group

"I didn't feel I could take a look at opportunities [elsewhere] while on the board," Bergstein said.

Bergstein added that he is looking at a broad range of possibilities from information systems providers to IS users.

A source within the company noted that Bergstein, who joined Arthur Andersen & Co. in 1968, had been reporting directly to

managing partner George T. Shaheen since last year. When Arthur Andersen began a major reorganization—consequently, Bergstein had little supervisory room above him on the corporate ladder.

Rumors within Andersen indicate that Bergstein may join Andersen's archival, London-based consulting and advertising giant Saatchi & Saatchi Co., or Apple Computer, Inc. But Bergstein denied this speculation. "I haven't talked to those guys," he said.

Prior to moving to Andersen's Chicago headquarters, Bergstein was the partner in charge of the firm's New York Technical Services Organization division, where he directed research of information technology trends.

No successor has been named, and the date of Bergstein's last day at Andersen has not been set.

Amdahl starts strong but ends week on a low

BY JEAN S. BOZMAN
ON STAFF

SUNNYVALE, Calif. — It was an up-and-down week for Amdahl Corp.

Early last week, the company proudly announced two triumphs—a planned August demonstration of IBM's Enterprise Systems Architecture (ESA) on Amdahl processors and a new solid-state disk drive, the 6110. But by week's end, it announced lowered expectations of earnings for the quarter, although revenue is expected to be 20% higher than it was last year.

Amdahl spokesmen said second-quarter earnings would be 25% to 35% lower than they were a year ago when Amdahl enjoyed a record-high quarter. Net income that quarter was \$53.8 million on \$423.8 million in revenue.

Amdahl said a transition to new processors and disk drives was a factor in the lowered projections, as was a change in foreign currency exchange rates. "We don't know whether this problem is temporary or lasting," a spokesman said. "But there are several factors, including competitive pricing by IBM."

Any setback may be temporary, said Dale Kutnick, president of the Meta-Group, a Westport, Conn., market research firm.

"Amdahl should be in good

shape this year, with revenues about 20% higher than they were last year," Kutnick said. "But IBM is discounting more than they ever have, and Amdahl has to come in at prices 20% to 25% below IBM's price umbrella. That's why Amdahl's sales are going to get hit."

Amdahl's earlier-than-expected support for IBM's ESA should be taken as a good sign, Kutnick said.

Even Amdahl competitor National Advanced Systems, a Hitachi Ltd. subsidiary, thinks Amdahl's ESA support is good for the plug-compatible mainframe (PCM) industry. "It's just more proof of what Amdahl and NAS have said for a long time—that IBM has no silver bullets that can kill the PCMs," NAS spokesman Chuck Mulloy said. Hitachi's ESA processor software is up and running in the firm's Kasugawa Works in Japan, he said. And ESA support from NAS should be available to customers in the fourth quarter.

ESA support moved up

Amdahl's ESA support schedule was moved up because the prototype system's alpha-site tests went well, said Tom Moore, Model 5990 system marketing manager. "When you plan a project, you always leave yourself some room to look back," Moore said. "When we powered ESA up on our machines, it was clean, and we were able to cut a lot off

our schedule." Amdahl built its ESA support features with simulators that track individual machine instructions in slow motion as they cross an I/O channel.

Commercial shipments of ESA support for the 5890 are slated for September, while those for the 5990 are scheduled for later in the fall, Amdahl said. By 1990, ESA support will come as a standard feature on new Amdahl processors, the company said, while older processors can get a field upgrade that would include ESA support. Field upgrades for 5890s are scheduled for the fourth quarter, while those for the 5990s are expected to come in January.

Interoperation

Amdahl's new 6110 high-performance storage subsystem is intended to interoperate high-intensity I/O traffic before it gets to a miniframe's disk drive subsystem.

The 16-byte solid-state memory unit can be directly attached to a miniframe channel, relieving I/O requests to general-purpose disk-drive systems such as Amdahl's 6100 system. The 6110 can handle up to eight simultaneous I/O operations, said Al Richard, manager of Amdahl storage systems marketing.

Richard said the unit would allow end users to pay about \$1,000 per megabyte. "We feel the 6110 can off-load 30% to 40% of the I/O activity, and that makes the entire computer system more efficient," Richard said.

The 6110, priced at \$140,000 for a basic configuration, is scheduled for shipment this fall.



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More trying times for Wang Labs

BY NELL MARGOLIS
CW STAFF

LOWELL, Mass. — Winds of warning last week from Wang Laboratories, Inc. regarding fourth-quarter financials left us largely untroubled.

Meanwhile, the organization's revelation that founder and chairman An Wang will undergo cancer surgery later this month polarized analysts with regard to the already shaky mini-computer company's future direction.

Wang, 69, has been undergoing chemotherapy treatments for a malignant tumor in the esophagus, the company announced last week. Surgery to remove the tumor is scheduled for July 14.

Several analysts confirmed that the serious illness of a company's guiding presence generated by such takeover speculation that, in turn, sparks a stock jump.

In Wang's case, however, virtually unchanged stock prices signaled Wall Street's disagreement as to whether the largely family-controlled Wang Labs would be more or less likely to be acquired if its founder no longer had a major voice in the decision.

Shao Wang, an analyst at



Wang's illness has fueled speculation

Smith Barney, Harris Upham & Co., said that some other analysts have voiced opinions that An Wang would like to sell the company but that his son, Chief Executive Officer Frederick Wang, "wants to hang on to it to prove that he can run it."

However, he added, "I talked to Dr. Wang in April, and came away with a very strong feeling that he did not want to sell out."

Mixed signals

Wang planted additional signals pointing in contradictory directions late last Friday in the

form of announcements of an imminent substantial operating loss and an approximately 9% decline in revenue for the fourth quarter ended June 30, as well as employee attrition in excess of that forecast by the company for this point in time.

Users reported considerably less ambivalence. "If you think the current situation at Wang would tempt me to move to another vendor, you couldn't be more mistaken," said Clement Kichuk, president of Market Corporation Systems in Westport, Conn. Kichuk said that the frustrations his company has admittedly encountered when dealing with Wang as a corporation are more than offset by its "absolutely superb technology; the best in the market."

"Things will either get better or worse for Wang," Kichuk concluded. "If they get better — well, there you have it. If they get worse and the company is bought out, the new owner will be getting products of immense value. Because the value is there, they will endure."

thermore, they said computers could be outfitted with cabinets that are water-proof.

David Hsieh, president of Shih-yung Technology Inc. in McLean, Va., described how cabinets made watertight with gaskets and O-rings can work with water sprinklers and air-cleaning systems to protect computer equipment from fire and water damage. The metal cabinets have access panels for operations and maintenance, he added.

Several speakers from the fire protection industry urged computer manufacturers to respond by making their equipment more fire- and water-resistant. However, that will only happen if such features are demanded by a substantial number of customers, they said.

Johnson said users should pressure vendors into adding fire-resistant properties to the cabinets, components and cables they sell. "That was never done there," because halon was there, he said.

Johnson noted that Factory Mutual Engineering and Research Corp. in Norwood, Mass., has conducted tests that classify various cables according to their fire-retardant properties. Information systems managers could use such fire ratings in their specifications for computer and communications equipment, he said.

Furthermore, users should

New York getting tough on virus perpetrators

BY ROBERT MORAN
CW STAFF

ALBANY, N.Y. — Legislators here have called for tougher computer security measures, a strengthening of the state's penal code and a curbing of access to computer-related information through the state Freedom of Information Law. Against a backdrop of computer viruses and a proposal to link 8,000 of the state's computers into a common network called Empire Net, New York state Sen. Roy M. Goodman, chairman of the New York State Senate Committee on Investigations, Taxation and Government Operations, issued a report titled "Beware Computer Virus Attack."

Goodman also introduced legislation to bar those responsible for perpetrating viruses from seeking in computer fields within the state for five years. In addition to any judicial punishment imposed, any person convicted would be automatically excluded from employment in a computer-related capacity in any governmental or educational entity in the state for five years from the date of conviction. If a second offense were committed, the exclusion would be permanent.

Permanent record

Although the state government cannot dictate practices in private industry, Goodman said in an interview last week that "a felony conviction will be on an individual's record and alert any future employer to problems." The state Assembly will not consider his proposal until the next session begins in January.

The legislation also calls for the creation of an Office of Centralized Computing Services within the Budget Division to establish uniform regulations as well as coordinate and oversee computer security standards among the state agencies. It is essential to have a concentrated

group with substantial computer expertise overseeing the entire state government, Goodman said.

"I describe it as a common operation that will continuously examine the system for viral invasion," Goodman said.

Charles Blum, associate vice-chancellor for information technology at the State University of New York in Albany, said he generally agreed with the direction of the bill.

"One of the greatest things that we deal with in technology is offering access to appropriate personnel and denying it to others," Blum said. "It is not always easy to balance those two things."

Security standards

According to the report, the Office of General Services should assume responsibility in the interim for setting security standards for state agencies and facilities rather than permitting each agency to establish its own level of security.

In addition, it said that minimum standards for computer security must be established and monitored by the Office of General Services for all intended users of the proposed Empire Net system.

Rep. Roger Quinby, deputy commissioner in the Office of General Services in Albany, said security on Empire Net, which is scheduled for completion in August 1990, is not at issue.

"Empire Net does not increase or decrease the security issues involved anymore than using a public switched network," Quinby said. "We deal with confidential transmissions from, for example, the state police and vital make sure that data is transported safely and reliably."

The committee also recommended that computer security guidelines be barred from the public access now available under the Freedom of Information Law.

phases, as well as higher insurance premiums. Waters said.

To minimize property losses, Waters said, computer rooms will need three different systems: fast-response sprinklers above the floor, CO₂ systems below the floor and a smoke-detection system. "Air-sampling detection systems can alert personnel of the presence of fire long before either sprinklers or CO₂ systems discharge," he said.

Mauser said a second meeting will be held to hear the views of the computer industry and users.

Halon options

FROM PAGE 1

At the Greenbelt meeting, several speakers said the demise of halon will bring the return of sprinklers for above-floor fire suppression and CO₂ for protection under the floor and inside

Less obnoxious risks

"There are options. The phaseout of halon is not a complete disaster," concluded the EPA's Denise Masauer at the end of a meeting on alternatives to halon-based fireproofing equipment. After hearing several technical presentations, Stephen O. Andersen, chief of the EPA's technology and economics branch, outlined the consensus views of the speakers.

• The alternative to halon-based systems probably involves some combination of watertight cabinets, CO₂ and sprinkler systems, early-detection systems and fire-risk reduction.

• The risk of fires in computer rooms can be reduced by making cables and equipment more fire-resistant and removing flammable cases as printers and paper. Fire protection should be a major goal in the design of new computer rooms and equipment, not an afterthought.

• The risk of business interruption can be reduced by implementing appropriate data backup and disaster recovery procedures, separating computers with fire walls and protecting them with water-tight cabinets.

• Halon cannot be replaced in such areas as planes, ships and control rooms, where evacuation of people is not possible.

• More research is needed on several topics, especially on how to retrofit existing computer centers.

• The biggest barrier to implementing these alternatives is that many local authorities have outdated fire codes. They will need education and training in nonhalon fire protection.

MITCH BETTS

Oil spills face Mac attack

Scientists marshal PCs in battle to control hazardous waste

BY MARTYFRAN JOHNSON
OF STAFF

As oil gushes from broken hulls into ocean waters off Rhode Island, Delaware and Texas last week, the Hammet team grabbed its Macintoshes and headed for the airport.

At each accident site, government oceanographers with the National Oceanic and Atmospheric Administration (NOAA)—known officially as the Hazardous Materials Emergency Response Group, or Hammet—were the first scientists at the scene of the environmental tragedy.

Their primary weapons were Apple Computer, Inc. Macintosh personal computers armed with programs tailored to attend to emergency response situations.

The 60-member Hammet team, headquartered in NOAA's Seattle office, spent the week-end of June 23-24 managing a triple-whammy of shipping accidents. All told, some 1.5 million gallons of oil spilled into ocean waters during the two-day period.

"It was one busy weekend," said Robert Pavia, a Hammet oceanographer.

The team uses the Macs to gather data, communicate with one another, access a hot-line database and run simulation models developed in-house to deal with atmospheric releases, oil spills and other water pollutants.

Programs they once ran on a Control Data Corp. mainframe in Seattle—accessible to only a half-dozen computer enthusiasts in the group—are now working tools for everyone there.

"Starting with an electronic mail system used on our [Prime Computer, Inc. 2550] computer, we've evolved over the years to the suite of systems we're using now," Pavia said.

"We are also pushed down onto desktop," he added. "I would say 90% of the people in our organization have no computer background. That's one reason we're using Macs."

In the aftermath of oil spills and gas leaks, NOAA also provides a regional hot-line system that links federal, state and local officials involved in the cleanup operation. "All you need is a dumb terminal to log in," Pavia said. "There's no special software. Any communications package on any machine will do."

The NOAA team coordinates all scientific information during spills, leaks and other unnatural disasters involving hazardous or toxic materials anywhere in the nation.

Scientists at the sites enter data into their Macs, which is then downloaded to the Prime system in Seattle and stored as files to be transmitted by electronic mail.

A key component in the Hammet team's response is a software package called CAMEO—Computer Aided Management of Emergency Operations—developed within NOAA and written in Fortran.

"Mapping is a key part of CAMEO. It's very visually oriented," Pavia said. The program was created using Hypercard as a "point and click" relational database. Hypercard "allows us to develop a specialized system real

quickly," he added.

During the Galveston Bay, Texas, spill, for example, the NOAA scientists were able to use the CAMEO program to swiftly convert estimates of gallons of oil and acres of ocean into a figure telling them how much oil was left to clean up.

"There is a lot on the market for applications like this, but CAMEO seems to cover what is needed," said Lt. David Atkinson of the U.S. Coast Guard Port Safety Station in Houston. "It's a very useful, but it's a very labor-intensive to put all the information in there and update it."



Rhode Island environmental management workers attempt to clean the 420,000 gallons of oil spilled by a tanker in Rhode Island Sound.

Atkinson said the system is especially helpful in advanced planning but of limited use in certain emergencies.

"When we had the spill in Galveston Bay, we didn't really have to use our software to estimate

where the oil was going because it was pretty obvious," he explained. "But in a large spill in open water, the program helps to some degree in plotting where the oil will go and what areas will be impacted."

Bicoastal team tackles regional spills

BY MARTYFRAN JOHNSON
OF STAFF

NARRAGANSETT, R.I. — When 450,000 gallons of home heating oil poured out of a Greek tanker into Narragansett Bay here last week, it prompted a coast-to-coast transfer of the newest computer technology around for shoreline mapping of oil spills.

As the news spread across the continent, an Alaskan state data coordinator and a Rhode Island coastal geologist picked up their personal computers and headed east with the desktop mapping system they developed in the aftermath of the Exxon Valdez oil

spill [CW, April 17].

"In order to avoid reinventing the wheel, we took the wheel from Alaska and brought it to Rhode Island," said Marshall Kendisorek, data coordinator at the Alaska Department of Environmental Conservation. "We used the same everything."

Kendisorek arrived in Narragansett at midnight, June 25, after traveling most of the day from Juneau. With him was Erich Gundlach, president of E-Tech, Inc. in Narragansett, a home company specializes in assessing the shoreline impact of oil spills. The two had been working in Valdez since late March, when the Exxon tanker dumped 11 million gallons of oil into Prince William Sound.

With his Compaq Computer Corp. Deskpro 386 portable in hand, Gundlach spent his lunch hour last Monday in a helicopter overflight to inspect the stained shoreline. He logged in his ob-

servations—such as the oil's sheen, thickness and spread—using Munmap, a geographical object-oriented software package from Generation 5 Technology, Inc. in Denver. The software, originally designed for municipal planning, links AutoCAD, Inc. Autocad graphics with SQL relational technology.

Early last week, Kendisorek and Gundlach worked alongside consultants from Applied Science Associates (ASA) in Narragansett, the company hired by the Rhode Island Department of Environmental Management to track and analyze the spill.

"Our major problem was coordination. Emergency response stuff is not our bag," said Eric Anderson, a senior scientist with ASA. The company had 10 of its 20 employees working in the field and office to digitize the nautical charts into plotted information on a trio of Dell Computer Corp. 80386-based PCs.

More than a CAMEO player

FROM NOAA's Washington, D.C., office last week, Cmdr. Steve Mason was following the progress of the Exxon Valdez cleanup operation in Alaska through hotline reports on NOAA's electronic mail system.

"Hammet takes on more than oil spills," Mason explained. "If toxic chemicals have been released, you have to worry about the cloud and which way the wind is blowing. The CAMEO database not only provides trajectory information but human health information as well."

The software's original version was updated to CAMEO 2 last year, adding in a number of useful pieces: disaster planning tools, mapping abilities and expanded information on health effects.

"We did it in Hypercard on the Mac, because we're dealing with people whose computers don't relate to computers," explained Robert Pavia, a Hammet oceanographer.

About 2,000 organizations and companies are using the full CAMEO system on the Mac-

intosh now, he said.

The most public release of U.S. Census Bureau maps from the 1990 census enhanced local uses for the program. "The Census Bureau has mapped to the street level the entire U.S., and they're making those files available now on nine-track magnetic tapes," Pavia said.

NOAA's scientists have written conversion programs of the census maps to be used with MacDraw software on the Mac. "You can call up the map, draw the chemical plume over it and have a visual key of what would happen," Pavia said.

NOAA's Prime host also maintains the resident database on every hazardous spill reported nationwide. Since Valdez made headlines around the world in late March, another 220 reports have been entered.

By agreement with the government, the CAMEO software is distributed by the National Safety Council for \$115 in the form of 15 diskettes and a 400-page manual.

MARTYFRAN JOHNSON

AST takes cue from IBM's I486 upgrade technique

IRVINE, Calif. — Bringing new meaning to the word "clone," AST Research, Inc. last week announced that it will deliver Intel Corp. I486-based upgrades to its Intel 80386-based systems.

The AST upgrade—occurring two weeks after IBM's similar upgrade of its Personal System/2 Model 70 A21—may be just one among a handful, said Bruce Stephens, an analyst at International Data Corp. in Framingham, Mass. "Don't expect a flood," he said.

Companies such as Wyse Technology and Zenith Electronics Corp. use back-plane designs similar to IBM and AST's that will allow them to enter the 486 market quickly, he said.

The Fastboard 486/25 add-in daughterboard upgrade, AST said, will be compatible with both its 25-MHz and 33-MHz 386 systems. Upgrades for AST's 386/33 will cost \$2,995; for the 386/25, the price is \$3,695. A 33-MHz upgrade for the Prestium 386/25 is priced at \$2,395.

Industry coalition targets trade issues

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Nine U.S. computer companies, led by IBM, Hewlett-Packard Co. and Tandem Computers, Inc., formed a coalition last week that will lobby government policy-makers on trade and competitiveness issues.

Other members of the new caucus, called the Computer Systems Policy Project (CSPP), are Apple Computer, Inc., Compaq Computer Corp., Cray Research, Inc., NCR Corp., Sun Microsystems, Inc. and Unisys Corp. The coalition will have an initial budget in the vicinity of roughly \$450,000.

Organizers said the coalition's work will complement but not replace the work of the industry's trade associations. However, other sources said the CSPP will be a chief rival of the Computer and Business Equipment Manufacturers Association (CBEMA), which lobbies on many of the same issues.

CBEMA President John L. Piccitt said in a brief prepared statement that the formation of the coalition is "interesting." He hinted that the group duplicates some of CBEMA's mission and then expressed hope that the two groups can work together to enhance the industry's representation in public policy discussions.

A knowledgeable industry source said formation of the new caucus implies some dissatisfaction with CBEMA, including concern that CBEMA has several Japanese-owned computer firms as members. Membership in the upstart CSPP is limited to U.S.-owned computer systems makers.

EMC signs disk device deal with Storage Tek

Richard Egan, chief executive officer of EMC Corp., may soon be collecting a paycheck again.

Last week, his company signed a deal with Storage Technology Corp. to provide solid-state disk devices that could eventually bring in \$100 million.

Egan had recently declared that he would not take a paycheck until EMC returned to profitability. The Storage Tek deal is a multiyear contract, but it could put EMC back on the right track after starting 1989 with miserable financial results. For the first quarter ended April 1, the company lost \$7.5 million on sales of \$24 million.

Storage Tek will resell the EMC product as the 4080 in the IBM mainframe storage market.

The device, which Storage Tek introduced last week along with several other storage enhancements, emulates a direct-access storage device (DASD) but is said to provide access rates that are up to 20 times faster than most DASD subsystems.

Storage Tek said it will start shipping EMC's product in the fourth quarter. Prices will start at \$120,000.

ROSEMARY HAMILTON

IBM, HP, NCR and Tandem are members of CBEMA, as are such Japanese-owned organizations as Fujitsu America, Inc., Hitachi America, Inc., Panasonic Industrial Co. and Sony Corporation of America.

The CSPP has not yet established a formal agenda, but company representatives said it is likely to provide the industry with a greater voice on the following issues:

- Trade policy that affects the computer industry, such as the U.S.-Japan semiconductor trade agreement. The computer industry wants to ensure that the semi-

conductor agreement, which allegedly triggered higher prices and shortages, expires as scheduled in 1991.

• Legislation that removes antitrust barriers to industry research and manufacturing consortiums, such as the new U.S. Memories, Inc., which is expected to produce 4M-bit dynamic random-access memory chips (CW, June 26). IBM and HP are members of both U.S. Memories and the new policy coalition.

- Competitiveness issues such as the cost of capital for U.S. industries and problems in the public education system.

The founders of the coalition are three

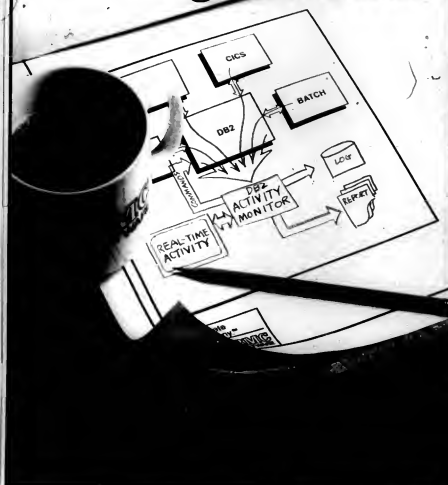
of the industry's more politically active executives: John F. Akers, chairman of IBM; John A. Young, president of HP and chairman of the Council on Competitiveness; and James G. Treybig, president of Tandem.

Several weeks ago, they sent a letter to other industry executives asking them to join the coalition, with an initial fee of \$50,000 per company.

A formal policy agenda will be established when the chief executive officers of the member companies meet in the early fall, according to Dick Bierly, vice-president of government affairs and international trade at Unisys.

The organization, which will be located here, is now seeking an executive director, organizers said.

Working with DB2?



ACM: China, U.S. exchange programs may be threatened

BY ALAN J. RYAN
OF STAFF

NEW YORK — The Association for Computing Machinery (ACM) warned the Chinese government last week that recent repressive policies in that country may endanger a computer technology exchange program between China and the U.S.

Brin Kocher, president of ACM, said the organization cabled its concerns to

Zhou Guangzhao, president of the Chinese Academy of Sciences in Beijing. The ACM said the recent violence in China has caused it to re-evaluate the technological exchanges that have been taking place during the last six years among ACM members and Chinese academics.

Kocher said the ACM's Scientific Freedom and Human Rights Committee was "shocked by the recent violent suppression of peaceful dissent in China." In early June, hundreds and possibly thou-

sands of protestors were killed following demonstrations in which they criticized the Communist Chinese government.

In an interview last week, Kocher said that the letter to the Chinese Academy requests information about what will happen to Chinese students and intellectuals, both in China and abroad. By some estimates, there are 40,000 Chinese students currently studying in the U.S. Of those, probably 10% to 15% are studying in the fields of computer science or computer engineering, he said.

"We are not going to have a sudden break in relations," Kocher said. "We just want to do some fact-finding to see what has been happening." Relative to his findings, the ACM may take action regarding the technical exchanges, he said.

Two of the issues addressed in the letter are whether or not the government will take action against Chinese students in the U.S., who supported the protestors and whether those students can safely return home at the end of their studies.

Because the Chinese Academy of Sciences is an arm of the government, Kocher said he is unsure that the ACM will get the unbiased, uncensored facts out of China. The ACM will also be exploring informal channels of contact to get the information it is seeking, he said.

"We feel there is an almost inextricable linkage between scientific freedom and personal freedom of all individuals in every country," Kocher said.

Identical letters were sent to Kuy Han, China's ambassador to the U.S., and Deng Xiaoping, chairman of the Central Military Commission of the Chinese Communist Party. Copies of the letter went to President Bush and Secretary of State James Baker.

Ironically, Kocher said the ACM's external activities board, which 10 years ago banned technical exchanges with the Soviet Union when that country invaded Afghanistan, is now considering rescinding that ban and reinstating contacts with the Soviets. "At the same time, we're worrying about decreasing contacts with China," he said.

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CDC to market Convex C series supercomputers

BY ELLIS BOOKER
OF STAFF

Control Data Corp. will sell Convex Computer Corp.'s C series supercomputers, the two companies announced last week.

The deal with Richardson, Texas-based Convex is the second marketing agreement of its kind in as many months for CDC, which folded its own supercomputer division, ETA Systems, Inc., in April as the major element of a \$490 million restructuring.

In May, Minneapolis-based CDC announced a similar joint marketing agreement with longtime rival Cray Research, Inc. That pact should be finalized within 30 days, according to a CDC spokesman.

Unlike the Cray pact, however, the agreement with Convex, expected to be finalized July 15, will make CDC the exclusive Convex distributor in some non-U.S. markets. To date, only Mexico has been named. Domestically, CDC will be the prime systems integrator in Cyber mainframe C series installations in some vertical and geographic markets.

Founded in 1982, Convex has sold more than 475 systems in 25 countries and claims 300 customers worldwide. However, company officials admit they have had difficulty developing international distribution channels.

CDC and Convex said they had established a joint technology committee to identify areas of technical cooperation and systems integration.

But at least one user of Cyber miniframes who is known to be a "cray" supercomputer was cautious about the pact with the two vendors, noting that details have not yet been worked out.

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INSIDE THE INDUSTRY

DCA: More Than Just Irma

...with new products and acquisitions

Computer Systems News

PRODUCT

Monday, November 14, 1988

DCA Links Macintosh To Mainframe

New Software Dovetails With Apple's Computing Strategy

BY JOHN THOMPSON

ANAHIM, CALIF. — Digital Communications Associates Inc. (DCA), a software publisher for Apple Computer Inc., said its DCA Macintosh software package is designed to be used on a Macintosh network. The software package could prove to be a key element in Apple's strategy to give Macintosh users access to the mainframe.

popular machine...
to give Mac...
from the Mac...
The software...
Apple's Mac...
2870-line...
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DCA To Bring Mainframe Graphics to Mac

By Jane Moroney and

Digital Communications Associates Inc. intends to be the first off the block with software that gives Macintosh users access to the mainframe to display...



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DCA (Workstation Communications)

Sales pitch

FROM PAGE 1

vestment banking firm, Cunningham flew on American every week between Chicago and New York for 42 straight weeks. Then, after not having to fly for four weeks, he received a personal letter from American asking if the airline had done something to displease him. The incident made such an impression that Cunningham has been a

between New York and Chicago customers who have high travel-related needs."

Passengers are also targets of less subtle selling efforts. United Airlines recently sold its direct route between Seattle and Tokyo to Continental Airlines. To retain some of those customers, United tapped its list of passengers for information, offering bonus miles to flyers if they stayed with United and flew to Tokyo via San Francisco, according to United spokesman Joe Hopkins.

Third parties outside the airline industry are increasingly grabbing a piece of the frequent-flyer marketing action, entering into joint promotions with the larger airlines.

"Businessweek is a big fan of ours because we reach the audience that they're trying to reach, and so we've had some successful subscription promotions with them," Hopkins said. United may incorporate third-party solicitations in its own mailings to frequent flyers, or, Hopkins said, "We may do a mailing for them that would not contain information about our frequent-flyer program; it would just be a solicitation from Businessweek."

American Airlines and Citibank have a pact that allows Citibank to mail Visa applications to American's frequent flyers. Citibank spokesman Bill Ahern said his firm receives from American names and addresses of frequent flyers, "a bunch of very good

customers who have high travel-related needs."

Midway Airlines, which is not quite 10 years old, is ranked down around No. 14 among U.S. carriers in terms of size, still realizes the potential of exploiting passenger information. "It's something that we haven't done a lot of in the past, but we're gearing up now," said Rick Larsen, Midway's director of market planning.

Midway flight path

Although Midway recently licensed access to the Sabre reservation system, the relatively small carrier's information analysis capabilities are still on the runway compared with the high-flying United and American operations. "As a smaller airline, a lot of the things we are now looking at from an MIS and data standpoint are really just being developed," Larsen said.

Airlines—whether large or small—that operate without a link to a CRS are heading for serious economic turbulence. Donald Burr, ex-chief executive officer of the defunct People Express Airlines, claims his lack of a CRS doomed the company.

According to Burr, United and American were able to use up-to-the-second booking data and historical booking patterns derived from their CRSs to discount selected seats and undercut People's standard low fares. These relatively few bargain-basement seats hurt People's reputation as a cheap airline and ate away at the customer base until Burr was forced to sell the struggling company to Texas Air in 1986.

Clearly, this is a fiercely competitive industry, and passengers are the rope in the airlines' tug-of-war. According to Ameri-



American Airlines/Sabre system

Peak volumes:

- 1.862 message units per second
- 64.5 million message units per day
- 480,731 bookings per day

Frequent-flyer programs:

- American Advantage has nine million members

(COURTESY AMERICAN AIRLINES)


Airline agent accesses CRS to record a passenger's reservation record.

devoted American customer ever since.

Despite its personal touch, the letter was probably generated automatically by the Advantage system, which scans for passenger flight-pattern inaccuracies in the lucrative corridor

can spokeswoman Karen Cook, many airlines are accessing competitors' frequent-flyer names from lists generated by third-party list sources and contacting them in an attempt to lure them into their fold.

"It can be done, and it is being done," Cook said. "It is a competitive tool that the airlines have available to them in their marketing strategy."

Peel pushers

Not everyone is happy with the peddling of passenger names and addresses. H. Wayne Berens, president of Princeton, N.J.-based Revere Travel, said some of his corporate clients have complained that "it is nobody's concern where their employees are traveling," particularly in light of recent anxiety over international terrorism. "They want reassurance that this information is not available to every Tom, Dick or Harry," he said.

Berens noted that frequent-flyer customers have also objected to the telemarketers that bound them.

According to Robert Ellis Smith, editor and publisher of the "Privacy Journal" newsletter, most frequent flyers expect to receive solicitations from the airline and its third-party partners. "But it's important for an organization to give an option to people not to have their names used" for marketing purposes, he said. United said it does not offer such an option, but it plans to do so in the future when it expands its direct-mail operations.

United, for one, said it maintains complete control over its passenger names. "Third parties give us their material, and we put it in the envelope and send it out," Hopkins said. "They never use the names and addresses, and they don't get their hands on the [frequent-flyer membership] list."

Data debate

Airlines are abusing proprietary passenger data, the American Society of Travel Agents (ASTA) charges, and the group is now preparing its case to present to the U.S. Department of Transportation (DOT).

To ensure fairness in the industry, the DOT requires CRSs to sell aggregate booking data to any airline wishing to buy it. ASTA wants this requirement eliminated because, it contends, some airlines are cross-referencing the data with records from other sources to gain proprietary information about individual travel agencies' business.

"Each carrier obviously wants to know what kind of business each travel agent is doing with their competitors," said Stephanie Maxson, director of industry affairs at ASTA, which represents 220,000 member agencies worldwide. Some airlines have used this information to leverage commissions they pay to agencies, she said.

"The air line would come in and say, 'We've done X percentage of your sales on my airline, but I see you've done X percentage on my competitor. Therefore, until you increase my market share, I'm only going to pay you X amount of commission,'" Maxson said.

American Airlines spokeswoman Karen Cook said the airline has no knowledge of the use of booking information to pressure travel agencies, but she confirmed that such data is available to carriers if they "want to devote the tremendous amount of computer power and resources to sort through the data."

RICHARD PASTORE

BY RICHARD PASTORE

CR STATE

Stratus Computer, Inc. and Digital Equipment Corp. systems are on better speaking terms now that Stratus has announced support for Decnet communications.

DNS/2000 communications software will allow businesses with Decnet local-area networks to tie their DEC systems and applications to Stratus and Stratus OEM fault-tolerant machines. No changes to the DEC hardware are needed for task-to-task communications, Stratus said.

"We have a large number of customers that are very interested in buying Stratus gear for their critical applications, but they also have large investments in DEC equipment," said Eric Janzen, manager of third-party products at the Marlboro, Mass.-based Stratus. "They want a way for the Stratus unit

to cooperate in their existing network." The company already supports IBM's Systems Network Architecture.

Currently, DEC users wanting to link up with Stratus boxes must employ Transmission Control Protocol/Internet Protocol, which often requires costly changes to applications and re-training of personnel.

Janzen said he sees particular demand for the product in manufacturing, in which 24-hour operation requires "Stratus" fault-tolerance capability and where DEC has a significant shop-floor presence.

One of three beta-test sites, the International Stock Exchange in London, is expecting its test copy of the software at the end of July. Peter Kirby, program director in the exchange's advanced technology department, said he needs a speedy, real-time connection to transmit stock quotations between the

exchange's Vaxcluster and its three Stratus XA2000s. The separate systems are now tied by "a convoluted mechanism of asynchronous links," Kirby said.

Besides task-to-task communications, DNS/2000 supports end-node functionality, network file access and network control program, according to the firm.

Bob Randolph, an analyst at market research and consulting firm TFS, Inc. in Westford, Mass., said, "It's a very positive move on Stratus' part to accept the inevitability of a multivendor environment. The connection with DEC expands their market" and gives them the opportunity to take advantage of DEC's lack of fault-tolerance capability.

DNS/2000, to be marketed by Stratus and Incoet, Inc., is slated for September availability. Prices will reportedly range from \$17,500 for the XA2000 Model 50 and 70 to \$45,000 for the Model 150 and 160.

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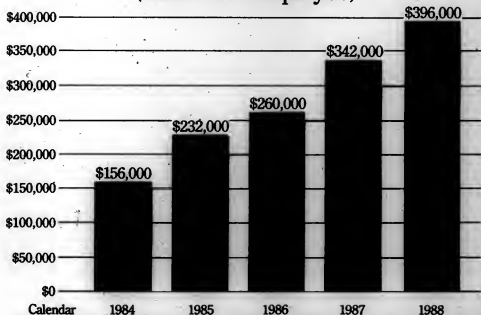
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EDITORIAL

Look first

BIRDS DO IT, bees do it, even the flowers and the trees do it.

Cole Porter

It's safe to say that when Porter first wrote those words, he probably was not thinking about downsizing and outsourcing. Nonetheless, the spirit of his lyrics applies nicely to the passion with which many information systems managers are economizing operations these days.

True, it is something of a shotgun affair, with the fingers of financial major domos on the trigger. But the lust of senior corporate officers to pare costs — to boost profits and ward off hostile takeovers or, conversely, to pay for a takeover defense — has got IS thinking about efficiency and cost containment as it perhaps never has before.

Of course, no one can argue about a courtship with efficiency, which we will define as doing the same with less resources or doing more with the same resources. But think for a minute: How many of us have worked in organizations in which a cost-cutting program designed to trim waste tended to go far beyond that to a point where the budget ax often hacked away at the good wood and fresh growth?

For these and other reasons, the rather rapid resurgence of outsourcing of IS operations and the growing interest in downsizing — the two primary cost-containment strategies being employed today — must be looked at more critically than ever, because they can readily accomplish what senior management wants to see — namely, short-term savings from the IS budget that go directly to the bottom line. Yet these savings do not always come without a cost, and that may not show up for a few years.

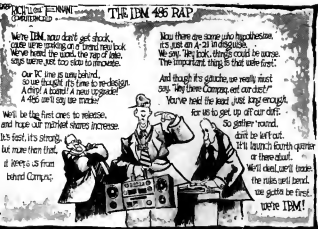
According to Chuck Gibson of the Index Group, a leading IS consultancy, there are very progressive uses of technology that advocate movement away from downsizing toward greater centralization — for certain companies. And for these companies to downsize or decentralize operations to save a buck today could invite competitive disasters tomorrow when systems efficiency breaks down relative to the competition.

Or consider those companies rushing to outsource IS services to third-party providers. It is true that this revival of the service bureau concept can greatly benefit overall IS efficiency and even add value to operations at times.

Consider that most of the companies who have heartily embraced the concept are companies under tremendous financial strain, usually as a result of a takeover or takeover attempt. Could they be giving something up in the long term to improve short-term profits?

In many of these cases, the answer is probably yes, because the impetus for taking the outsourcing plunge had little to do with long-range IS planning and more to do with external forces. Thus, the potential downside of outsourcing in these companies was likely not fully explored.

So before falling in love with either of these ideas, first heed another old saw: Look before you leap.



LETTERS TO THE EDITOR

The suit fits

The article "Suit wearing thin around users' pockets" [CW, May 22] refers to users upset over a patent-infringement suit brought by Digital Equipment Corp. Glen Greenwald was quoted as saying "... DEC can afford to be more lenient ... if we are going to encourage innovation in the industry."

It seems to me that just the opposite is true. It was DEC's innovation in the 1970s that brought us the VAX. And it is the profit on their R&D initiative that ensures to us that we can expect them to continue their efforts.

Third-party vendors can produce products more cheaply if they do not have to invest much money up front innovating the hardware and evaluating its worth. But they will not be able to produce the next innovation.

If the market is not willing to bear the price of innovation, there will not be any innovation to bring to market. I want to see DEC continue to protect its investment.

If the patent rights do not hold up in court, that is another matter entirely. Until then, the morality of their action comes directly from the concept of the U.S. patent office.

Tim Stenard
Pontiac, Mich.

Numbers crossed

"Creativity marks shift in use of high-volume printers" [CW, Product Spotlight, May 29] spotlighted two Xerox customers, Charles Stark Draper Laboratory, Inc. and American Express Travel Related Services Co.

We appreciate the inclusion of these two Xerox high-volume

printer customer applications in your informative article but would like to correct the error that describes "Draper's four high-volume printers — two IBM 4050s and two Xerox Corp. 3835s." This, of course, should be "... two IBM 3835s and two Xerox Corp. 4050s."

Thank you for otherwise nice coverage.

Dwan C. Carlson
Product Manager
System Marketing
U.S. Marketing Group
Xerox Corp.
El Segundo, Calif.

Case opened

The response of Stephen L. Koss [CW, Viewpoint, May 29] was well-reasoned and an important contribution to your readers. As a teacher of business ethics using the case method, I wholeheartedly support Koss' view.

Many colleges, including Siena Heights in Adrian, Mich., where I teach, use the case method of instruction and have found it to provide a valuable contribution to their students' development of critical thinking skills and global perspectives on business problems. In the past, we may have turned out good technicians, but the times today call for new visions and new perspectives — broad-minded and socially responsible business leaders.

Jack Bologna
Assoc. Management Professor
Siena Heights College
Adrian, Mich.

Clarifying

There were some inaccuracies about the US West Automation Project in "The difference between conservation and cutoff"

[CW, May 8]. The opinions quoted about automation in general are accurate; however, I am not the data center manager but the project manager for automated operations. In addition, this data center is not Tandem Computers, Inc.-dominated; we have a mixture of IBM, Unisys Corp., Tandem and Unix machines.

The automation project actually began in October 1987 in the Tandem environment using a product from Votek Systems Ltd., The Intelligent Console, not in 1984 with machine-language code. We have since automated all of the above-mentioned environments using Votek's Tplex products.

Larry W. Marshall
US West Communications
Albuquerque, N.M.

En-light-ened

Now we know that IBM terminals are not "dumb" but "non-programmable" [CW, Inside Lines, May 29]. Decades ago, its wired panel equipment had a light that indicated power was on. This light was labeled "idle" until Tom (Watson) Senior saw it. "IBM machines are never idle," he said, "they are ready!" The lights were quickly relabeled.

D.S. Owings
Director
Computing Services
Pratt Institute
Brooklyn, N.Y.

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Lubner, Editor, Computerworld, P.O. Box 9171, 375 Commonwealth Road, Framingham, Mass. 01701.

Upping your system's smarts

HARVEY P. NEWQUIST III



For all the attention you're paying to maintain your mainframe — approximately

70% to 85% of your department's budget goes into the system's maintenance — your computer system is not getting any more "intelligent" than when it was first installed. It is still bound by rules of operation that were developed a decade ago. If your car's maintenance costs were 80% of your overall travel budget, you'd probably drive it over a cliff.

The notion of creating more intelligent systems is finally gaining notice in large IS centers. Spending millions of dollars to keep systems working at the status quo seems to be the value equivalent of washing your car three times a day. It sure looks nice, but it doesn't run that much better. What can be done to ensure that your large system does more than survive and evolve to a state of smartness?

Inject it with intelligence. Infuse techniques that were developed in the artificial intelligence

Newquist writes and consults on artificial intelligence and other advanced high-tech topics from his office in Scottsdale, Ariz.

business into the lifeblood of your not-so-smart mainframe.

This approach is gradually winning favor in large firms in which information is so distributed and fragmented that simply accessing the right information at any given time is a lesson in system query pyrotechnics.

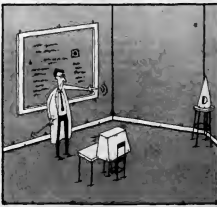
The use of artificial intelligence knowledge bases has provided for such efficiency, but they have always been components of stand-alone systems, primarily as part of engineering or research endeavors, isolated from information contained on corporate databases and networks. These dark projects were relegated to dark corners of corporate computing, often thought of as the lonesome fringe.

But a major change in the way intelligent systems are developed has recently taken place. Programming and application tools specifically for use in established IBM mainframe environments are the newest opportunity for the firms that developed the once solitary expert system. Making mainframes smarter is this year's hot topic. But what is a "smart" mainframe?

Take something fairly standard in large companies — an inventory control system. An expert system could start making purchases on its own based on time and price and inventory needs. It could even take into ac-

count the cost of restoring inventory using considerations such as cost vs. delivery time.

Computes such as Alon, Al Corp., Inference, Intellicore, Neuron Data and Syntelligence may be unfamiliar to many readers right now. But these firms



MARK KIDMAN

have been developing products that specifically work within the large system environment to create intelligent applications.

There are two approaches to applying intelligent technologies to large systems, first, as a template, in which the system lies al-

most invisibly over existing applications, and performs its functions as necessary, or, as a front- or back-end system in which the user can jump in and out of a standard application and make use of the expert system's "expertise" as necessary.

This is happening now with amazing rapidity, and there is good reason. As the AI business has gradually wised up, it found

ward IS environments.

Recently, developers started optimizing existing expert system tools to run in IBM environments without bringing IBM equipment to its knees. This meant removing some of the bells, whistles and other gaudy features that researchers favored. In return, they created an intelligent application tool that would run efficiently within the sometimes archaic parameters within IBM's large operating systems. Although AI purists may sneer at the sacrifice and the resulting trade-off, there is one thing they can't sneer at: The compromise works.

It is now possible to develop intelligent applications on personal computers and then port those applications to a mainframe. Such information exchange ensures control over the intelligent part of a system without having to devote precious mainframe time and resources to every moment of maintenance or updating. Primarily, it distributes expertise and machine intelligence in a way that workstations could never achieve.

The purpose behind mainframes hasn't changed much since they were introduced in the 1960s. Speed and storage has clearly improved, but smarts, a feature that was attributed to a computer in those early days, is just now getting added. It has been a long time in coming, but it seems that we're finally getting machines out of dumb terminals.

IBM's SAA Office: A move to the power seat?

AMY D. WOHL



With a great sound and fury, IBM announced its first Systems Application Architecture product offering, the SAA Office. The question is, is this an important event in the history of IBM and the computer industry, or is this just another warhorse planning session for an Emperor who needs some new clothes?

Happily, there is a lot to talk about here — and even something to order fairly soon.

IBM's Officevision product line seems to have something for nearly everyone, but what is clear is that the SAA Office offering is an unbalanced set of products. While some organizations can participate very soon, others will be offered solutions only

somewhat later. Some competitors claim that SAA is an IBM Band-Aid for an IBM problem (multiple operating systems), and that those firms that employ only one operating system across their product family don't need their own SAA-style solution. All large firms use at least mainframe and PC platforms; most use one of the intermediate minicomputer platforms and frequently both minicomputers and LANs. This means that any user is inevitably faced with multiple operating systems and the problem of gluing them together across applications and data sets.

Officevision will (eventually) run across all the SAA platforms — OS/2, OS/400, VM and MVS. As they almost say in George Orwell's book *Animal Farm*, "Some workstations are more equal than others." Officevision wants you to use a big PC, preferably a Personal System/2, with 8M bytes of memory. The superior Officevision interface, with its seductively sophisticated look, needs all the bells and whistles of OS/2 Extended Edition. Presen-

tation Manager and the object oriented, direct manipulation, iconic interface.

It's lovely! We, and you, will admire it, but all of us will need to invest in those big workstations first. Version of Officevision will run on lesser workstations but with much less pizzazz and, at least initially, with less functional. Terminals get a text-only interface (but you weren't really planning on using those anyway). DOS PCs get a character version of an icon interface — big, clumsy and garishly colored but better than no icons.

Reconsider?

DOS deserves better, and perhaps IBM will be persuaded to reconsider this initial choice and offer something more expressive: Windows suggests itself. But Windows won't run well on original PCs and PC XT's and only slowly on most 640K-byte AT's, so that may not be a viable solution either.

The initial SAA Office announcement speaks largely to the new Officevision LAN environment, invest in even one Officevision-capable PS/2 and its software and you can implement an IBM LAN Office environment for your DOS PCs.

Therein lies the tale. Officevision is hindered by how slowly

buyers have moved to purchase high memory personal workstations. IBM must have thought that this market would develop more quickly so that an Officevision announcement in 1989 would be greeted and supported by a substantial installed base of big PS/2s. But the slowness of the OS/2 Presentation Manager software market has kept this installed base from growing as quickly as planned.

This means IBM must persuade users to buy the big workstations as part of the Officevision decision or to forego the interface — which is an important part of Officevision's lure.

In the meantime, the Officevision function will spin out onto the OS/400, VM and MVS from September 1989 through June 1990 (and, of course, more later), but this is initially the SAA function of these platforms' current products. OS/2 workstations with the Officevision interface cannot even be directly connected to these hosts until direct connection becomes available in mid-1990.

For big customers, IBM's May 16 Officevision announcement was the big, good news they had long awaited. It gave them decisions, planning time, firm initial products and a hint of more good things to

come. IBM is firmly in the office market now, and those firms that once played frantically on the industry giant's scarcely tended turf will find it much tougher to compete.

For smaller users, anything that is not shrink wrapped doesn't count. For them, IBM must reach the September shipping dates for LAN Officevision before its fate is seen in smaller user environments.

No tricks

In fact, the splendor of the IBM Officevision announcement is the validation of a simple technology fact: Mainstream technology is available at about the same time to every vendor and is used by most. There is no black magic. Every vendor has to be concerned about attaching applications across platforms, moving software across interfaces, and that at the same time exploit new technology without eliminating the usefulness of older workstations.

IBM's attempts to solve these problems describe the problems every vendor will have to attack and solve to compete.

It looks like the office market is warming up again. Last time, it was about hopes and ill promises, but it should be all about competing and surviving.

Wohl is president of Wahl Associates in Boca Croyd, Fla., and editor of *The Wahl Report on End-User Computing* newsletter.

OS/2 NEWS

Volume 1, No. 5

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SYSTEMS & SOFTWARE

HARD TALK

Rosemary Hamilton

A late Jumpstart

IBM's team in Rochester, Minn., recently completed an intensive training program for its business partners that should have been done a year ago.

But there's good news with that bad news. There's no question that the training program should have been done last year so that business partners, particularly software developers, were better prepared to help end users migrate to the new platform. By now, we've all heard stories of difficult AS/400 migrations.

Obviously, if software companies had had more AS/400 expertise when their customers were initially installing the systems, then some of those migration horror stories never would have happened.

For that, IBM deserves to be chastised. But perhaps a more productive way to look at it is that although IBM's timing was off, at least the industry giant is now doing something about the problem. It's important to get end users—both brand new ones as well as those that have had problems—productive on the AS/400 as soon as possible.

Continued on page 22

M&D shows Blue hue

DB2 to be standard for application tools

BY STANLEY GIBSON
CVP STAFF

NASHVILLE — Last year, the big noise at the McCormack & Dodge Corp. annual conference was its software for Digital Equipment Corp.'s VAX products. This year, M&D returned to its IBM roots, pushing its strategy for Systems Application Architecture (SAA) and introducing new products that work with IBM's DB2.

"We are heavily committed to DB2 as a database standard," said M&D Chief Executive Officer and founder Frank Dodge as he unveiled General Ledger:

Millennium DB2 (GL-M DB2). Although M&D had previously brought its Millennium environment to DB2, the firm had not yet announced any of its application packages to work with DB2.

Other application modules are in line to be offered in DB2 versions, according to M&D. The next one will apparently be the human resources module. M&D was offering sneak previews of the package at the Opryland Hotel here at the software conference.

Jonnie Woodward, manager of personnel operations at LSI

Continued on page 22

One, two

MSA and M&D are the favorites for two popular applications, but MSA holds a wider lead in integrated human resources packages

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	7% Genex
	3% Other

*Includes WS from providing C/O services

SOURCE: IBM CORP. (1992)

BY STAN GIBSON

HP boosts low-end supercomputers

CHELMSFORD, Mass. — Hewlett-Packard Co.'s Apollo Division recently introduced a slew of enhancements for its Series 10000 personal supercomputer. Among other issues, the announcement countered rumors that HP was ready to pull the plug on the Series 10000, designed by Apollo to compete in the relatively new low-end supercomputer market.

The three-part announcement included compiler enhancements, peripheral devices and communications interfaces.

The compiler enhancements, which will be offered free of charge, are expected to boost performance by as much as 80%. Beginning in September, the compiler changes will be auto-

matically shipped with the Series 10000. At that time, current customers can pick up the enhancements for free.

The new Series 10000 peripherals and interfaces include disk and tape drives as well as support for the IBM Token-Ring network, a new bus, a multiple network controller and high-performance tape drives.

Disk expansion

Apollo added disk expansion systems of 1.4G and 2.8G bytes for a total expansion capability of 5.6G bytes. Each disk supports two additional disk controllers. The 1.4G-byte drive will sell for \$34,000, and the 2.8G-byte unit will cost \$62,000.

Apollo also announced a

1,600/6,250 bit/in. nine-track magnetic tape drive, which is priced at \$22,500, and a high-capacity 2.3G-byte 8mm tape drive priced at \$11,000.

Apollo added a high-performance parallel interface that allows Series 10000 customers to connect to Comshare, Inc. printers and plotters. Centronics Data Computer Corp.-compatible devices, the Teconics, Inc.-based Coloprint 300 graphics printer and laser printers. The interface costs \$1,650.

With the networking enhancements, Series 10000 users have support for the IBM Token-Ring network as either a native network, bridge or inter-network router. Token-Ring support will be included in the

system's base price, an Apollo spokesman said. Customers can add-up to two Ethernet, IBM Token-Ring or Apollo Token-Ring networks to the Series 10000 and choose from any combination of networks.

Apollo also offers support for the small computer systems interface (SCSI) bus for Series 10000 users wishing to connect SCSI-based peripheral devices to their systems. SCSI support will be offered at \$1,500.

Inside

- GAC Research Institute switches on Wang VS 10000, Page 21.
- M&D to offer SAA look and feel on MS-DOS-based systems, Page 22.

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SOFT
TALK

Stanley Gibson

SAA-speak:
'Over time'

You can tell if someone is working closely with IBM by the number of times he says "over time" in the course of a conversation or presentation.

Using the phrase a few times within a half-hour talk means he writes software for IBM processors but communicates with IBM only through formal channels. Saying "over time" once every five minutes, however, means his company is an IBM business partner.

The use of the phrase more than twice every five minutes means he is being briefed on future product directions and is offering advice to IBM on them. More mentions than that means IBM has purchased his company's stock. Any further use of the term means the speaker is from IBM itself.

Why is it that IBM has taken to this phrase so wholeheartedly? It has become like the mantra that Mitch Kapor used to teach transcendental meditation.

A lot has to do with Systems Applications Architecture (SAA). SAA will unfold "over time." Cross-System Product (CSP), part of SAA, will likewise develop and grow "over time." The repository will come into being not all at once but "over time."

IBM is in the midst of a massive restructuring.

Continued on page 22

Gas consortium fires up Wang VS 10000

ON SITE

BY ELLIS BOOKER
CIS BUDDY

CHICAGO — A Wang Laboratories, Inc. VS 10000 has become the flagship of a tightly integrated applications environment at the Gas Research Institute (GRI), which switched on its new minicomputer last month.

A Wang shop for the past decade, GRI, a gas industry consortium that plans and develops financing for research and development, is one of the early users of the VS 10000, the top-of-the-line minicomputer that Wang introduced in January.

Hugh V. Naughton, GRI's director of information systems here, and it was interesting that his company's first Wang system, a VS 80 with four terminals that was installed in 1979, was selected for software, not hardware, requirements.

"It ran the Computation general ledger program," Naughton said, noting that "most people at the time bought Wang for word processing, not data processing."

Software was again the key when GRI began looking at relational database management systems. The firm selected Wang's DBMS Programmer Application Creative Environment (PACE) and did not seriously consider IBM's DB2, Naughton said.

"Remember," Naughton said, "three or four years ago, you couldn't find too many [DBMS] packages out there that would do the integration we wanted." By integrated applications, Naughton means GRI's Integrated Management Information System, or IMIS, an environment that links Wang word processing, electronic mail and

calendar functions with specialized subsystems for project tracking.

"I don't think there's anything on the market today that integrates those products as well as Wang does, and definitely none could do the job we're doing on the system today," Naughton said.

With the aid of two outside contractors — SHL, Inc., the U.S. subsidiary of Canadian-based Systems House Ltd., and Chicago-based Wood Spru Tannura, Inc. — Naughton's staff of 13 has made continual enhancements to IMIS, which became operational in October 1987.

An example of this elegant integration is IMIS' Contacts database. Once a simple mailing list substitute, it was ported to PACE and then integrated into IMIS in 1987. Under IMIS, a record is input only once into Contacts files, other applications — financial, word processing and project management — use an index to access this common data source.

Moreover, data in IMIS can trigger events across applications. "For example, whenever a date is put into the database, it automatically triggers an entry in the appropriate project manager's calendar," Naughton said. "So when that date comes up, the manager is reminded to take action."

Similarly, the project-tracking application provides a way for each manager to create a

"profile" that directs the system to forward — using messages, reports or calendar updates — such relevant information as changes to a projects being handled by another manager.

The user profile also can initiate exception reporting. "Instead of reviewing 1,500 proj-

ects and linked to the home office over 9.6K bit/sec. leased lines.

Together, the four processors support 113 terminals and another 222 Wang and IBM Personal Computers as well as 15 Apple Computer, Inc. Macintoshes. The MS-DOS-based personal computers and the three Chicago minis are connected over a Wang Foculink network.

The PCs are outfitted with Wang 928 Local Connection Option boards, and the Macs communicate with the minis using Wang terminal emulation software and modems.

GRI's applications fall into the categories of administration, project management and finance, though some research models — fruits of GRI's R&D funding — are run in the office on PCs. Unfortunately, the PCs are occasionally overwhelmed by these processing tasks, Naughton said. One software program, for example, took a Wang XT an entire week to run. Although the PC was replaced with an Intel Corp. 80386-class machine, the program still takes an entire day to run. "We're considering adding a platform more attuned to research applications," Naughton said.

If he is considering non-Wang platforms, what does Naughton think about IBM's AS/400? "We've already got a business machine in the VS 10000," he replied. Still, Naughton said that some of his users ask about the IBM alternative. His answer to these inquiries, he said, is to point to the magnitude GRI has accomplished with Wang and IMIS.

Naughton's conclusion: "We've been able to accomplish a degree of integration that we simply could not have accomplished for the same dollars on any other platform."



"I DON'T THINK there's anything on the market today that integrates those products as well as Wang does."

HUGH NAUGHTON
GAS RESEARCH INSTITUTE

Naughton said, "the management by exception reporting means projects that are out of funding or reporting their ranges are flagged."

The VS 10000 replaced a VS 3000 and joins a Wang VS 7310 and two VS 85s. Three of the minicomputers are located in GRI's headquarters in Chicago's western suburbs, while one is in the firm's Washington, D.C., of-

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M&D

FROM PAGE 19

Logic Corp. in Milpitas, Calif., said the new package will be most welcome. "We do lots of calculations and need to take a quick look at employee statistics," she said, referring to the query capabilities of DB2.

A feature of the GLM DB2 package offers the same access to VSAM data as to DB2 data from a single screen that complies with SAA's Common User Access (CUA). An identical feature was promised with the upcoming human resources module. Some users are migrating older databases under VSAM to the newer DB2 and may want to run both concurrently until the transition is complete, said M&D Vice-President and Chief Technical Officer John Birch.

M&D's applications were previously unavailable under DB2 because of its limitations; the current version of DB2, however, adds such features as referential integrity, which is necessary for truly productive applications, Birch said.

The gist of M&D's SAA approach is to use relational access to data, cooperative processing and CUA, Birch said. However, the emphasis on SAA raised issues about M&D's midrange strategy.

Reaching the AS/400

Having reached out to DEC's VAX last year, M&D has yet to fully embrace the AS/400. DEC's current products for the

AS/400 are the firm's previous System/38 products without significant alteration.

Some users were reportedly told at one briefing that M&D would not improve the System/38 software that runs on the AS/400 until 1992. When told this, "People were not happy," M&D said they would not improve the System/38 until all SAA standards were available," said Jim Throneberry, senior consultant at Kentucky Fried Chicken International Corp. in Louisville, Ky.

However, Skip Patterson, M&D corporate vice-president for financial products, would not discuss specific dates regarding M&D's AS/400 products and said any such talk would be merely speculative.

There are apparently two camps at M&D vying for the corporate direction. One urges an immediate move to the AS/400; the other says to hold off until user demand and SAA features increase. One M&D official acknowledged that there is disagreement within the firm as to how quickly to proceed with AS/400 development.

Throneberry, who runs M&D financial software on a System/36, expressed displeasure at M&D's plans to end support for its System/36 products, effective Dec. 31, 1990. "It doesn't make any sense for me that they'll drop support of the System/36," he said.

In addition to the GLM DB2, M&D announced new DB2 tools: Millennium Viewprint DB2, a cross-application detail

Still committed to DOS

Although McCormack & Dodge touted its support for IBM's SAA at its annual user conference in Nashville, it also professed a strong commitment to the MS-DOS-based personal computer as a workstation. MS-DOS is not included in SAA, which is limited to OS/2 for PCs.

M&D's strategy is to allow users to migrate gradually to fully SAA-compliant workstations, said David Leschinsky, marketing manager of PC products.

M&D will offer a look and feel on MS-DOS-based systems that is similar to SAA's CUA for OS/2-based systems, according to Leschinsky. Although not a standard, CUA actually consists of different user interfaces for terminals and OS/2-based systems.

M&D announced Time Entry Workstation, a PC-based module that it said is the first to perform cooperative processing in its human resources line. Time Entry enables users to access payroll information from a host and then enter, validate and report on time-card data on a PC. That information can then be uploaded to the host.

Although M&D tried to promote the Time Entry Workstation package as offering cooperative processing features in step with SAA, the software runs only on MS-DOS. Any cooperative processing with the host is done through terminal emulation, rather than via LU6.2, the SAA-standard cooperative processing access method.

M&D said other such MS-DOS-based work-

station modules will be available in the future for these human resources packages: HRM-Financial, HRM Personnel and HRM Benefits Administration.

At the user conference, M&D also demonstrated its SAA Millennium Workstation software, an OS/2-based package that uses the Presentation Manager version of CUA and communicates with an SAA host through LU6.2. That package, however, will not be available until next year.

Another issue M&D addressed was the potential for differences between user screens on workstations connected to Digital Equipment Corp. VAX hosts and user screens on workstations connected to IBM SAA hosts.

Covering all the bases

Leschinsky said that in the future, M&D's PC Link package will communicate with both VAX and IBM hosts.

PC Link 3.1, which will be available at a controlled level later in the year, will offer CUA appearance and connect interchangeably with either a VAX host or an IBM host running DB2 or VSAM. A subsequent version of PC Link will have an LU6.2 implementation, Leschinsky said.

M&D officials tried to assuage fears of user interface differences by pointing out that DEC's AIA, IBM's SAA and X/Open Consortium Ltd.'s CAE user interfaces are all heading in the same direction.

STANLEY GIBSON

Gibson

FROM PAGE 21

are software architectural effort — SAA — and it makes less interest up, not for a period of months but years.

The phantoms who built the pyramids must have approached the Egyptian citizenry in the same way — saying that they just kept plugging away, some incredible structures would result. It is as if IBM is building the pyramids and must keep showing the masses something of what the finished product will look like to keep the workers committed to the goal.

Why else would IBM have coordinated the announcements of nine independent software vendors announcing support for CSP to commemorate the announcement of a shipping date for a new version? That version had already been announced to ship this month. The announcement changed the date to June 30. This was not the widely expected rewrite of CSP that IBM is reportedly working on with Transflow Logic.

CSP currently does not inspire great confidence. The vendors are showing more faith in

IBM's ability to improve CSP — as it has said it will — than in CSP as it now exists.

Most users grant that SAA, like the pyramids, is impressive in concept and will be admirable when completed. However, IBM has said that SAA, unlike the pyramids, will never be complete; it will always be evolving. Howie Hinger at IBM's Applications Systems Division said as much at the recent McCormack & Dodge user conference. SAA mentor Earl Wheeler has said the same thing publicly.

At any rate, some day SAA will be more complete than it is now. One prominent IS director whose company has served as an IBM beta-test site in the past did, yes, he is working with CSP because of IBM's statements of intent. But the manager has judiciously not bought into the IBM futures scenario so completely as to abandon all else. He also uses other fourth-generation languages.

While users are waiting, it makes sense to plan for two tomorrows — one if IBM's promises come true and another if they do not.

Gibson is Computerworld's senior editor, software.

Hamilton

FROM PAGE 19

From the looks of things in Rochester last month, the recently completed training program is one way to make that. Called Jumpstart, it consisted of intensive, week-long training courses for software developers on the AS/400 environment. IBM ran eight week-long programs, each of which was attended by more than 100 developers. Each day's work officially started at 8 a.m. and ended at 4 p.m., but many developers stayed in the lab until 10:30 p.m.

The software developers said they now had more AS/400 know-how than they could have previously imagined, which can only be beneficial.

The students also said the course clarified some long-standing AS/400 issues. For example, developers said that one issue was the time constraints of moving from System/36 mode into AS/400 mode. IBM reps at the training program finally declared that it is not necessary to move to a native mode as quickly as possible. Developers were then able

to pick up techniques to get better performance from the AS/400 while running in System/36 mode.

The fact that IBM didn't have programs like Jumpstart when the AS/400 was first hitting the market is a question that even Stephen Schwartz raised.

Schwartz, who is the IBM vice-president in charge of the Application Business Systems Division, recently said the one thing he would have done differently is provide more training for business partners a year ago.

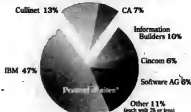
Schwartz's comment is typical of the way IBM has handled its AS/400 effort. There have been a few errors — when one occurs, IBM admits it and then does something to fix it. Jumpstart is an example of that.

Hamilton is Computerworld's senior editor, hardware.

Data View

One-fifth of the field

With the acquisition of Callinet, Computer Associates will control 20% of the mainframe DBMS market



*From a survey of 4,000 U.S. IBM and compatible mainframe users done in a 1988.

SOURCE: COMPUTERWORLD

BY CHART: THE INFORMATION

NEW PRODUCTS — SYSTEMS

Processors

Unisys Corp. has expanded its line of BTOS workstations.

An entry-level model, the B28-LCW reportedly includes an Intel Corp. 80286 processor and 8M bytes of memory, supports a variety of monitors and sells for \$1,995.

The B28-EXP model can perform the dual functions of server and workstation and support up to 13 cluster workstations, the vendor said. The system is said to offer an internal Convergent Technologies, Inc. X-bus slot, memory capacity of 8M bytes, 2M bytes of user memory and a potential disk capacity of 2G bytes. It costs \$2,995.

A Token-Ring network module for networking BTOS clusters lists for \$1,795.

Unisys
P.O. Box 500
Blue Bell, Pa. 19424
215-542-4011

A multifunction point-of-sale system has been introduced by Printer Products.

Designated the S868, the unit is based on a Motorola, Inc. 68000 microprocessor and was developed primarily for retail hardware, software, revenue collection, wholesale distribution, automotive aftermarket and hospitality applications, the vendor said.

The system incorporates a real-time operating system capable of diskless applications, a video I/O facility for creating windows and instructional prompts, a 9-in. CRT, a two- or three-station printer and an all-steel cash drawer, according to the vendor.

The S868 system is priced at \$3,975.

Printer Products
25 Denby Road
Boston, Mass. 02134
617-254-1200

Avalon Computer Systems, Inc. has announced a reduced instruction set computing application accelerator designed specifically for Digital Equipment Corp.'s VAX computers.

The Vaccelerator AP/30 board runs at 15 to 20 million instructions per second (MIPS) and does not require user reprogramming, according to the vendor.

The device reportedly can be configured in parallel; with a 10-board configuration, it can be operated concurrently for up to 150 MIPS in a single system.

An AP/30 board with 4M bytes of memory is priced at \$10,000, according to the vendor.

Avalon Computer Systems
425 E. Colorado St.
Glendale, Calif. 91205
818-247-2216

Ilex Systems, Inc. announced two products for system-level logic and fault simulation.

The Ilex 2800 and Ilex 2900 simulation systems are said to offer tightly coupled behavioral simulation with hardware-based gate- and switch-level simulation. The products run on Hew-

lett-Packard Co.'s Apollo Division and Sun Microsystems, Inc. workstations. The Ilex 2800 has a reported gate-level capacity of 320,000 gates, and the Ilex 2900 has a maximum capacity of 1.2 million gates. The systems are priced from \$95,000.

Ilex Systems
145 N. Wolfe Road
Sunnyvale, Calif. 94066
408-245-1900

Applied Digital Data Systems, Inc. (ADDS) has enhanced its Mentor 6000 series of multiuser computer systems.

According to the company, additions to the series include an internal 150M-byte, W-in. streaming tape drive and an internal 350M-byte, 5¼-in. disk drive. Both devices reportedly use small computer systems interface technology.

The Mentor 6000 series is based on the NCR Corp. Tower platform and runs under an enhanced implementation of the Pick operating system.

Pricing begins at \$30,000, the vendor said.

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Systems Division
100 Marcus Blvd.
Hempstead, N.Y. 11788
516-231-5400



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NEW PRODUCTS

Development tools

Interactive Systems Corp. has introduced the Interactive Architect series of Unix system software modules.

The software was packaged to address applications, net-

working and workstation areas in an effort to meet specific user or developer needs, the company said. The series reportedly includes the 386/IX operating system, an enhanced operating system product based on AT&T's Unix System V, Release 3.2.

Each module is available in both stand-alone and multitier versions. Pricing starts at \$495. Interactive Systems
2401 Colorado Ave.
Santa Monica, Calif. 90404
800-346-7111

Athena Systems, Inc. has announced Parview, an implementation management system for network-distributed soft-

ware development.

The software uses industry-standard network operating and window management systems, according to the vendor. The windows-based environment reportedly facilitates software implementation, problem reporting and tracking on a variety of Unix platforms, including those from Digital Equipment Corp. and Sun Microsystems, Inc.

A 10-user license costs \$11,000.

Athena Systems
139 Kifer Court
Sunnyvale, Calif. 94086
408-730-2100

In an effort to support a major segment of the real-time embedded Ada market, Verity Corp., Wind River Systems, Mizar, Inc. and San Microsystems, Inc. have announced a technology merger to provide state-of-the-art real-time Ada development and run-time capabilities.

The Vadevworks Ada software package reportedly combines the Verity Ada Development System (VADS) with the Wind River System Vxworks real-time operating system.

The software runs on either a Sun workstation or a Mizar Hybrid Ada Development System and is priced from \$27,500.

Mizar
1419 Dunn Drive
Carrollton, Texas 75006
214-448-2664

Utilities

Intex Solutions, Inc. has upgraded SQL-DocuFact, the company's SQL/DS data administration and maintenance tool.

Version 3.0 reportedly accommodates complex databases, including new Main Menu options, and provides full restart capabilities. The software automatically handles complications such as multilevel views, table views that come from different DBspaces, multiple grant levels and DBspaces with tables owned by different users, the company said.

The program is said to run with any release of SQL/DS. Several licensing options are available. A one-time perpetual license ranges from \$7,500 to \$14,500, depending on CPU size.

Intex Solutions
161 Highland Ave.
Needham, Mass. 02194
617-449-6222

Softool Corp. has announced that its Change and Configuration Control (CCC) software package is now available for Hewlett-Packard Co.'s 9000 Series 300 and Series 800 computer systems.

The software package runs under the HP-UX operating system and provides HP users with an automated environment for their change- and configuration-management requirements, according to the vendor.

The package reportedly incorporates a native command language, macro language and build facility.

Pricing ranges from \$3,500 to \$35,500, depending on hardware configuration.
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Worth the wait?



Spreadsheet catharsis. If you had a nervous tic, working at Lotus for the past 18 months would have made it worse. The world watched with less and less patience as the company slaved and fretted over its baby, 1-2-3 Release 3.0. George Bush put it best: "It was Tension City."

If Release 3.0 were a character, it would probably be Dagwood Bumstead. Both were often late, a bit gluttonous but in many ways still immensely lovable. And after many years, both look nearly the same.

Like Dagwood, who eventually makes it to work, Release 3.0 arrived. Customers are happy. They can now decide if it was worth the wait or if a year or more was wasted while more effective products could have been in use. But buyers of all are the

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Inside

- Sun sets on Taiwan-based manufacturers. Page 29.
- CAD finds a home at Herman Miller's. Page 29.
- PC Expo: And in this corner... user groups. Page 30.

Lotus takes 1-2-3 to a new dimension

ANALYSIS

BY DOUGLAS BARNEY
OF STAFF

CAMBRIDGE, Mass. — Lotus Development Corp.'s 1-2-3 Release 3.0 may not be the first spreadsheet to offer three-dimensional worksheet capability, but it may be the first to popularize this confusing but useful feature.

While some users are quick to grasp the concept of 3-D and have ideas about how to use it, many who have not seen the feature are unclear as to how it works. To add to this confusion, some products with file-linking have been hyped as having 3-D capabilities. Lotus officials have taken pains to point out.

Lotus, which offers both 3-D and file-linking in Release 3.0, now finds itself trying to educate

potential customers and then selling them on 3-D.

At its most basic level, 3-D provides depth to worksheets, which formerly had two axes, the firm explained. In fact, users can have a number of worksheets that are related and can page through them, much like a reader flips through loose sheets of paper.

According to Lotus, instead of having all your data in a huge spreadsheet that spills far off the screen and is difficult to manage, the data can be broken up in logical and linked ways. This way, data is easier to locate and the worksheet is easier to understand, supporters said. Users can also create references to cells and ranges across multiple sheets.

Release 3.0 not only allows multiple files to coexist in memory but also allows each file to

Lotus goes 3-D

1-2-3 Release 3.0 allows multiple worksheets within a single model



BY MICHAEL GOODMAN FOR PCW

BY MICHAEL GOODMAN FOR PCW

contain multiple worksheets.

The 3-D feature is also handy for consolidation, Lotus and its customers said. While managers

used to load all the data from their direct reports into one large worksheet, each can now

Continued on page 30

DEC doubles number of LAN/Server occupants

BY WILLIAM BRANDEL
OF STAFF

Acknowledging that personal computers are proliferating at its sites, Digital Equipment Corp. has doubled the number of users it can support on its personal computer local-area network server.

DEC has announced PC LAN/Server 3100, based on its Vaxstation 3100 processor, that can

now support up to 48 PCs. The PC LAN/Server 3000 supported a maximum of 20 users.

The 3100 includes 8M bytes of memory and can be expanded to 32M bytes. Configured with a 104M-byte storage disk and a 96M-byte streaming tape, it is priced at \$12,500. Configured with a 312M-byte disk, the PC LAN/Server 3100 costs \$15,500.

With this announcement,

DEC seems to have accepted the rapid PC growth at its sites, said Sandy Waters, DEC's business development manager for integrated PCs.

Waters said DEC is now going to concentrate on selling packaged products and staging a PC marketing blitz this summer "to show that Digital is also a PC company."

Getting in sync

Although DEC is not embracing all PC standards yet, the announcement brings the firm more in sync with PC market dynamics than ever before, Waters said.

DEC is supporting IBM's Mi-

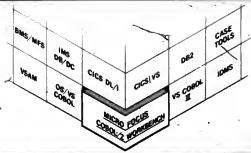
cro-Channel Architecture (MCA) after moving support last fall for MCA rival Extended Industry Standard Architecture bus. The PC LAN/Server also widely supports IBM communications protocols with packages that include SNA/ Gateway and PS/2 along with Decnet wide-area networks.

Although the server now supports only DOS clients, OS/2 software support will be available around the first quarter of 1990, Waters said.

DEC had to expand its support because its sites are increasingly embracing PC tech-

Continued on page 30

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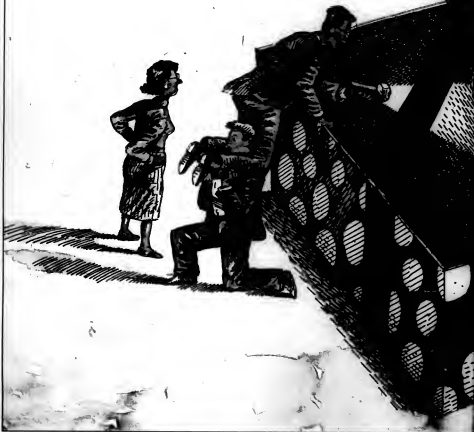
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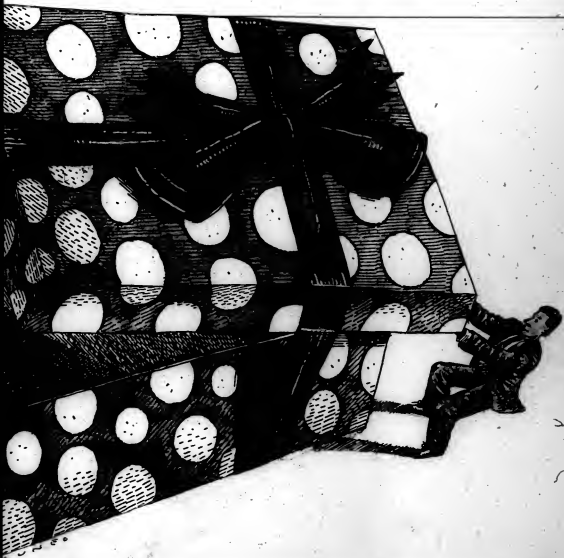
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SMALL
TALK

William Brandel

Freedom is:
No more
vendor hype

Amid roasting hot dogs and swatting at mosquitoes on the Fourth of July, it is time to reflect on two cherished American institutions: freedom and capitalism.

Meanwhile, in the personal computer industry, these coveted and very American entities are being warped by an anomaly known as vendor preannouncements. You will often hear vendors call these disclosures "upward migration paths."

Preannouncements are useful when they simply disclose technological directions to the site. But they are unhealthy when vendors arbitrarily decide who gets technological disclosure, such as a select number of usually larger customer sites or hand-picked financial analysts. Preannouncements also exploit a firm's product standardization policy, forcing users to wait for that endorsed vendor's product.

This freezes out competition and ultimately gives the information systems site a limited choice of options and products. Once upon a time, in presidential administrations that held fair and healthy competition close to their heart, the U.S. Government called it anticompetition. But this is the '80s.

The hard part to swallow here

Continued on page 30

CAD-based business sits pretty

ON SITE

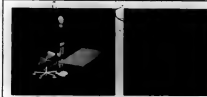
BY WILLIAM BRANDEL
OF STAFF

ZEELAND, Mich. — The expanding world of computer-aided design and engineering (CAD/CAE) is driving the technological evolution of one of the world's leading office furniture manufacturers, Herman Miller, Inc.

In the office and furniture design business, it is aesthetics design that gets you in the door, but the utility and functionality get you invited back. With this in mind, Herman Miller has placed computer-aided drafting and design on the top shelf of its information systems strategy.

In fact, the upgrading and drafting layouts of its manufacturing plants, design centers and offices are predominantly performed with Herman Miller-made CAD/CAE packages for personal computers. For cost-efficiency, these tasks are now being performed on Compaq Computer Corp. Deskpro 386 personal computers rather than high-power workstations.

"We've found that personal computers make an excellent CAD platform," said Rick Bartling, manager of product planning, in a design-intensive business such as Herman Miller's, "two years ago, you would never have seen us do anything like



Herman Miller's CAD specialists are testing a package used to study office-chair tilt mechanisms.

factiveness, these tasks are now being performed on Compaq Computer Corp. Deskpro 386 personal computers rather than high-power workstations.

"We've found that personal computers make an excellent CAD platform," said Rick Bartling, manager of product planning, in a design-intensive business such as Herman Miller's, "two years ago, you would never have seen us do anything like

thin," Bartling said.

Bartling's comments underscore Herman Miller's basic philosophy in business and its IS function: Make it simple. Just as the business' role is to make working in an office easier and more effective, the company's IS department sees its role in the same light. "We're here to support the business, not lead it with technology," Bartling said.

An example of how IS follows business is the way Herman Miller entered the office design business and concentrated on space utility. The company has chosen to support this strategy with off-the-shelf applications, and in turn offers its customers its in-house-developed templates. Herman Miller's IS group endorses popular commercial PC applications such as Autodesk, Inc.'s AutoCAD, Versacad Corp.'s Versacad and InterCAD, Inc.'s Cad-vance and will build its own only when necessary, Bartling said.

Complementing commercial software, the company created interactive graphics-based CAD applications designed for architects and facility managers. As Herman Miller has dozens of dealerships throughout the world, the application has simplified design and product orders from its customers. Dealers can simply call up a product using a

graphics symbol library and detail which products they want and how much space they have.

Herman Miller realizes that its likelihood-to-furniture design. This is where the higher end of the company's compute-intensive CAD applications come into play. Most of Herman Miller's furniture design is performed by contracted designers, most of whom have not made the computer migration. But when product testing begins, Herman Miller becomes an all-computer environment.

The plot

At one Herman Miller design plant just miles from its manufacturing and business center here, CAD specialists plot a designer's product specifications on Electronic Specification Package (ESP), which runs on a Digital Equipment Corp. VAX-based Intergraph Corp. system. ESP uses two- and three-dimensional graphic images for the company's Action Office system and Ethospace interiors, an award-winning snap-together office package.

CAD specialists are now beta testing and using a kinematic and dynamic analyses software application from Mechanical Dynamics, Inc. (MDI) in Ann Arbor, Mich. The package is used to study tilt mechanisms in office chairs. As the designer would change a single factor such as load size or center-of-gravity position, the design calculations would have to be completely reentered.

MDI has developed a procedure that assembles body definitions, initial condition and motions in a data set that could be used as a template. The "Android" extension was then run over the MDI 3-D application. The 3-D applications can then be studied to determine the specific parts of the chair design that are stressed, indicating whether further design may be necessary.

Sun OKs Taiwan clones

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc.'s decision to let two Taiwan-based manufacturers make low-end workstations based on Sun's Scalable Processor Architecture (Sparc) processor is being viewed as a key to Sun's attempts to drive Sparc as a standard.

"One thing that Sun is doing that Digital did not do when it tried to get its architecture accepted as standard was go into the low end," said Bruce Jenkins, vice-president of Datatech, Inc., a market research firm in Cambridge, Mass.

Despite the strategy, however, Jenkins said that no matter how many Sparc systems are

made, the Unix machines will have a tough time replacing MS-DOS in the commercial world. "Early indications are that dealers have a tough uphill climb in supporting Unix machines," he said.

Two weeks ago, Sun invited competition in the desktop reduced instruction set computing business when it announced that Taiwan-based Datatech Enterprises and Tatum Co. will make workstations based on Sparc.

Promising more than 50,000 units per month when the manufacturers get ramped up in 1990, the companies said they will bring computers into this country through their own distribution channels.

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BY RICHARD PASTORE
in New York

NEW YORK — The set of a 1950s science fiction film — an apt description of the neon vista of arches, arcs and domes that towered like galactic staircases from vendor booths at the PC Expo here earlier this month.

But beyond these glistening monuments, toward the back by the snack bar, sprouted a cluster of tiny, unadorned booths belonging to user groups and associations. Like an impoverished colony of space fugitives, they were staking out their corner of the expo world.

Barney

FROM PAGE 23

more than 2,000 beleaguered Lotus employees whose stomachs bear the scars of too much coffee and plans, too many late nights and too many insensitive comments. Sorry.

That relief was evident on

LAN/Server

FROM PAGE 25

nology, according to David Ezlitt, a senior analyst at Computer Intelligence, a La Jolla, Calif.-based market research group. C/I statistics indicate that in the last 16 months, the number of PCs per VAX site has increased from 56 in February 1988 to 52 in June 1989.

Ezlitt said that today, only 9% of VAX sites have no installed PCs, compared with 17% in 1988, while the percentage of VAX sites having large quantities of PCs has grown from 17%

The groups were not slighted by the segregation, however. "We like this spot; it works very well for us," said David Kleiman, vice-president of *NYPG Magazine*, a publication of the New York Personal Computer user group. "If we were next to Lotus or IBM, who'd notice us?" asked Eric Greenberg, research report editor of the American Management Association (AMA). "People come over here to get away from the crowds and cool off."

PC Expo management donated space to the nonprofit groups that were present among the approximately 20 association and

user groups represented.

The booths are modest for the most part, identified by homemade banners or no-frills 1-by-3-foot black and white placards. "We're here to make ourselves known to users and vendors," explains Tim Martin, vice-president of membership at Edge International, Inc., a Kenil, Wash.-based systems integration user group.

In sight, in mind

"It's good for the vendors to see us here, since they do a lot to support us," Kleiman said. The groups' attendance at the show, because it is an effort to promote

the serene faces of Lotus officials attending the announcement.

The sweating is over, and Cambridge pharmacists can now return to normal stocking of Ban Roll-On.

Lotus still has a lot to prove, however. The product has to be compelling, it must work, and follow-ups have to appear in a timely fashion. But that did not

halt the celebration. After the official unveiling festivities, employees engaged in a sort of symposium exuberance by convening on top of a garage and dancing to the music of Judy's Tiny Head, a local rock band. The firm, finally censored, is again ready to greet the world with a serious face.

The ordeal has taught Lotus important lessons, just as Ashton-Tate is learning from its Dbase IV problems. The firms that emerge are more honest, humble and realistic. It's almost as if they want criticisms to be aired and to come clean and enter the 1990s free from the filth of broken promises and angry customers.

These are firms that desperately want customers' trust, that put a good deal of control right where it has always belonged —

visibility and credibility, "in our way of acknowledging that support to the vendors."

But it was mainly users who approached the associations' booths, taking brochures and — less often — adding their names to mailing lists or membership rosters. Most confessed they had never heard of the groups before.

Some booths — particularly the AMA's, which featured a small, lighted, rainbow-hued display — drew brick traffic. Others, like the unadorned booth of the Association of Banyan Users International, were relatively deserted.

Competition among the groups is fierce, according to Greenberg. "There's a booth on one side of you and a booth on

the other, so you'd darn well better have a booth between them to show that you've been around longer and have more to offer," he said.

Only big strong survive

Though all the associations said they plan to be back at the show next year, the attrition rate is high.

"I've seen a lot of these people show up one year with hand-painted signs, and the next year 90% of them are gone," said Greenberg, whose association has manned a PC Expo spot for the past four years.

However, Greenberg added, "The ones that come back show up with big, full-color displays, which shows you what can happen with good exposure."

not well in the land of Windows development. A leading Windows newsletter recently accused Microsoft of inflating sales figures, taking back access to its Windows mailing list, not providing marketing assistance to developers and reaping an unfair advantage from its intimate knowledge of future Windows development. "There are at least 50 [Windows] developers that are threatening and could help up this year," the newsletter's editor said.

Microsoft also looms as a competitor. "It's ideal in that we develop a Windows word processor but don't sell any," noted Said Mohammed, head of Samma, which makes a Windows word processor.

Barney is a Computerworld staff writer. PCs and workstations.

Brandel

FROM PAGE 29

is that IS sites, the only ones who can stop this hype-without-substance trend, are doing very little with their standardization policies to stop it.

A case in point is Lotus' 1-2-3 Version 3.0. Sure, Chairman Jim Mani was severely crucified for repeatedly missing deadlines, but initial reports indicate that now that it's here — it's no question asked, just give me my spreadsheet.

An even more disturbing example is a fiasco that began at Comdex/Spring '89. IBM Entry Systems Division President James Cannavino, Compaq President Rod Canion and other PC industry dignitaries joined Intel on stage to support the 33-MHz 80386 and the 1486 chip.

When Canion and Cannavino were asked why they supported the 33-MHz chip, Canion (or he had no product at the time, they replied, "We don't discuss unannounced products." Fine, then don't.

The next day, IBM's Can-

vino took a few minutes before a private technology demonstration to reiterate his "on product, on discussion" policy, specifically referring to the 1486.

But what do we get from IBM one month later? Hypocrite, in the form of talk, lots of it, about the 1486 — its potential and future upgrade paths. The only 1486 plug in product in New York on June 30 was one on stage, and it wasn't even for sale. Technologically, the 1486 daughter card is a clever concept. Plug in the card, double your performance and you're off to the races — in December, that is.

What if Intel runs into manufacturing problems and can't deliver? Intel does have a near-perfect shipping record, but anything can happen in this industry. Ask Mani.

One of many IS managers asked the question that underscores their dilemma: "What can I do to get the 1486 (or any other product) if I can't test it?" A vendor's press release does not make one's IS size one lots more productive. This is a business tool, not just neat

technology.

Press announcements — i.e., competitive market freezes — do IS sites — the customers with the votes — little, if any, favors. One has to work one's own hard-earned customers will allow vendors to freeze competition and free choice out of key markets?

It was a mistake IBM Vice-President William McCracken said he didn't mean to say last month that retail channel support is priority No. 1 for IBM's ESD. In June, on the heels of the 1486 announcement, he corrected himself, stating customers are what it's about in his book.

Responding to criticism that the \$8,000 battery-packable Portable Model 70 is an elitist's product with a narrow target market, McCracken said it was intended to be a niche product, adding that IBM is trying to build a lower-priced, general-use laptop, or, in other words, he's asserted.

Brandel is a Computerworld staff writer.

Lotus

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become a page in a large data rollover. This feature will become especially apparent when the IBM mainframe version of 1-2-3 Release 3.0 ships later this year.

Linking is a more limited way of creating relationships between separate worksheets. File-linking allows users to share data between cells from different worksheets. While linking is fine for creating limited connections among worksheets, it has more difficulty handling models with many connections.

Lotus rival Microsoft Corp. is plugging its graphical interface and workstation-like linking against Release 3.0's character-based interface and 3-D. Terry Boorne, Excel Push Team leader for Microsoft, argued that linking is more effective and easier

for users.

Even men not convinced about the total value of Release 3.0 binged praise on its 3-D facilities. "We had Lotus in and Microsoft in, and I am now excited about Excel right now," said Phyllis Koch, supervisor of the advanced technology center at Ryker Truck Rental, Inc. Koch said she is, however, "vested in Lotus' 3-D capabilities."

Although no decisions have been made, Ryker may opt for a dual strategy that will allow users to choose between 1-2-3 and Excel, she said.

Bob Schuster said he believes that it will be easier to design applications using the 3-D features. He added, however, that he does not see a per-unit demand for 3-D at Rockwell International Corp., where he serves as director of information systems technologies.

NEW PRODUCTS

Systems

A family of document-image enhancement products for IBM Personal Computer ATs, Personal System/2s and compatibles has been announced by Kofax Image Products, Inc.

The Kofax Image Processing Platform (KIPP) was designed to speed application development and enable document-processing integration in both vertical and industry-standard business applications, the vendor said.

The KIPP family reportedly consists of the KF-9200 document processor engine, the KF-9100 and KF-910 image-retrieval engines, a developer's tool kit containing image libraries for DOS and MS-Windows, an MS-Windows print driver, support tools for third-party development software and an application program. A starter kit is priced at \$2,850.

Kofax Image Products
3 Jenner St.
Irvine, Calif. 92718
714-727-1733

A turnkey, raster-drafting workstation for mapping and facility-management applications has been introduced by Optigraphics Corp.

The Optidraft Station combines computer-aided design (CAD) capabilities with raster-image technology to aid users in revising technical drawings and maps, the vendor said. The product is said to incorporate an Intel Corp. 80386-based processing unit, a 1,024-by-768-color display and dedicated raster hardware and software integrated with a complete CAD package. According to the company, the system automatically rectifies images and removes scale inaccuracies resulting from changes in the drawing media.

The Optidraft Station is priced from \$39,900. Optigraphics
9339 Carroll Park Drive
San Diego, Calif. 92121
619-282-6060

Software applications packages

IBM has announced an enhanced version of the IBM Interleaf Publisher.

Designed to provide business professionals with general-purpose document creation capabilities, Version 1.0.1 reportedly requires only 2M bytes of memory. It runs on the IBM Personal System/2 Models 70 386, P70 386, 80 386 and 585X.

The software was developed by Cambridge, Mass.-based Interleaf, Inc. and incorporates a what-you-see-is-what-you-get format with pop-up menus and templates of frequently used

document formats. Regularly priced at \$995, IBM is offering the package at \$750 through Aug. 31 as part of a special summer promotion.

IBM
1133 Westchester Ave.
White Plains, N.Y. 10604
914-682-3366

An automatic employee-scheduling software package for IBM Personal Computers, Personal System/2s and compatibles has been announced by Schedule Master Corp.

The Schedule Master menu-driven package reportedly allows users to enter information on work-load requirements, employee availability, vacations, sick leave and personal days.

Functions include a forecasting model, labor-cost optimization and reporting capabilities, according to the company.

The software is priced at \$995; it requires 640K bytes of random-access memory and MS-DOS 2.1 or higher versions. Schedule Master
P.O. Box 20063
Maricopa, Ga. 30092
800-548-2167

Mouse Systems Corp. has announced PC Paint Version 3.1, a stand-alone graphics software package for the IBM Personal Computer, PC XT, AT, Personal System/2 and compatible systems.

The program supports up to 800-by-600-pixel resolution and provides 36 flood and fill types, the vendor said. The latest re-

Continued on page 32



INTRODUCING TOPAZ POWERMAKER MINI UPS. BECAUSE THE NEED FOR CLEAN POWER IS WORLDWIDE.

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the telecommunication industry, the Topaz Mini UPS features an advanced technology power stage that provides reliable, clean sine wave power and exceptional overload capability for the most demanding loads. For details, contact Square D Power Protection Systems, makers of Topaz Power Protection Products, 9192 Topaz Way, San Diego, CA 92123-1165, or call (619) 279-0111.

SQUARE D COMPANY
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lease includes an improved file-compression technique and a memory-management facility that allows the user to work with images larger than the actual viewing screen. It is priced at \$99.95.

Mouse Systems
47505 Seabridge Drive
Fremont, Calif. 94538
415-770-1924

Development tools

Visible Software has announced Version 2.0 of Dr. Pascal, the company's visible programming environment for the Pascal language.

The vendor said the program can be used for writing and debugging purposes and is especially suited for entry-level programmers. The latest release reportedly provides automatic formatting and additional runtime error-checking capabilities. The software runs on most MS-DOS-based computers and requires a minimum of 512K bytes of memory.

A single-user license is available for \$89, plus \$3 for shipping and handling, according to the vendor.

Visible Software
Box 7788
Dept. E
Piscataway, N.J. 08854
609-683-4366

A source-code analyzer for C programs has been announced by Implematics.

Called Codan, the product was designed to help developers manage large software systems, the vendor said.

The software reportedly processes an entire system's source and stores subsequent code information in a database. Query and report modules are included with the package.

The package runs on MS-DOS and is priced at \$395, according to the vendor.

Implematics
6 Brook Trail Road
Weymouth, Mass. 01978
508-358-5858

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BIM-POOL — CICS 3270 data compression system. Reduces response time for remote terminals significantly. DOS and OS.

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BIM

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Minneapolis, MN 55438
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Training

Dickmatters Corp. has released the latest volume in the company's Private Lesson Collection of personal computer video software tutorials.

Titled Wordperfect 5.0, Volume One: An Introduction, the product is aimed at first-time users of Wordperfect Corp.'s latest Wordperfect release. Other volumes in the series reportedly include the following: DOS: The Human Connection; Lotus 1-2-3, Volumes One and Two; for Lotus Development Corp. 1-2-3 users; and Wordperfect 4.2, Volume One. Pricing ranges from \$26.95 to \$29.95.

Dickmatters
P.O. Box 2677
Arlene, Texas 79604
915-673-1131

Teachware, Inc. has announced a series of spaced, multimedia training systems for business application software programs.

The Teacher-In-A-Box series reportedly consists of training for Lotus Development Corp.'s 1-2-3; Ashton-Tate Corp.'s dBase III, dBase IV and MultiMate; Advantage; and Wordperfect Corp.'s Wordperfect. According to the company, each course has two levels — beginner and advanced — and includes six 45-minute lessons on three audiotapes, a disk and a reference manual. Prices range from \$89 to \$99.95. A training course for first-time computer users, PC Start-up Kit, sells for \$19.95.

Teachware
P.O. Box 430
Dept. 2
Maple Ave.
Armonk, N.Y. 10504
914-277-4475

Data storage

A compact disk/read-only memory optical disk subsystem for IBM Personal Computer ATs, Personal System/2s and compatible computers has been announced by Micro Design International, Inc.

The Laserbank 600 CD reportedly includes an MS-DOS interface that allows the product to emulate a standard read-only hard disk or floppy drive and offers a 350-msec average disk-access time. A host bus adapter for either a standard IBM AT or Micro Channel Architecture bus is included. Priced from \$995, the product is available in either an internal full-height configuration or as an external full-height system in a stand-alone cabinet.

Micro Design International
6085 University Blvd.
Winter Park, Fla. 32792
407-677-8333

Procom Technology, Inc. has announced a software tool that provides OS/2 compatibility among the company's PC/XT/286 external floppy drive and all IBM Micro Channel-based machines.

Designed as the XPFS2, the driver allows the external floppy drive to read, write and format both 360K- and 1.2-Mb floppies configured under IBM OS/2 Versions 1.0 and 1.1, the vendor said. Copies of the software are available free of charge to all Procom Authorized Dealers as required users, the vendor said.

Procom Technology
200 McCormick Ave.
Costa Mesa, Calif. 92626
714-549-8449

Koonan Corp. has developed a series of hard-disk accelerators and enhancements designed to reduce disk access times to less than 1 msec, the company said.

The Temtime Disk Accelerators are available for ST-506/412 MFM and RLL interfaces and will reportedly operate in any Intel Corp. 80286- or 80386-based IBM Personal Computer AT. Pricing ranges from \$695 to \$1,295.

Koonan
Suite 103
1829 Westlake Drive
Tempe, Ariz. 85283
602-345-1300

Peripherals

Black Box Corp. has added several barcode scanning devices to the company's existing product line.

The products include the PC-Reader, designed for IBM Personal Computers, XTs, ATs and compatibles; the PS/2 Reader, developed for the IBM Personal System/2; the Serial Reader, which reportedly attaches to the RS-232C serial port on any terminal, PC or minicomputer; and the Bus Reader, a half-card device that fits into the slot of the IBM PC, XT or AT and does not require cables.

Each device is priced at \$550, the vendor said.

Black Box
Mayview Road at Park Drive
P.O. Box 12800
Pittsburgh, Pa. 15241
412-746-5500

Calcomp, Inc. has added 300 dot/in. resolution capability to its Coloview family of color printers and plotters.

According to the company, the Coloview 5913 and 5615 are desktop devices that use thermal-transfer technology to produce hard copy in color on both ANSI A/B50 A4- and ANSI B50 A3-size paper and computer graphics film. The 5913 is a color printer and plotter with a built-in rasterizer and 10M bytes of random-access memory. It is priced at \$13,995, according to the vendor.

The 5615 was designed specifically for use with the Coloview 903 color video controller to reproduce screen images from workstations with red-green-blue output. The unit is priced at \$9,495.

Calcomp
2411 W. La Palma Ave.
Anaheim, Calif. 92801
714-821-2142

Board-level devices

Vernort Microsystems, Inc. has announced a new generation of graphics processing boards and chips designed to reduce the cost of producing three-dimensional rendering, the company said.

The Video Control and Drawing chip reportedly permits renderings of three-dimensional wireframes and solids at workstation speeds on a Unix-based IBM Personal Computer.

The XSeries line of graphics boards also incorporates this chip to bring 3-D workstation graphics to high-speed 25-MHz Intel Corp. 80386-based personal computers.

The boards are available in a variety of configurations, with prices ranging from \$995 to \$8,495.

Vernort Microsystems
P.O. Box 236
Winooski, Vt. 05404
602-655-2860

NETWORKING

DATA STREAM

Elisabeth Horwitt

'Ours, or theirs?'

With 1992 promising to turn Europe into one open business community, many firms are thinking about expanding and enhancing their overseas presence — and thus the quantity and quality of their overseas connections.

Consequently, this means that a lot of companies will have to decide whether they want to implement and manage their own private international networks or use one or more carriers. The same kind of decision must be made in regard to domestic networks, but U.S. companies tend to have less information about public vs. private trade-offs when European Postal Telephone and Telegraph authorities (PTTs) are involved.

Peter J. Sevik, president of Sevik Consulting in Danvers, *Continued on page 35*

Inside

- Illinois agencies go digital. Page 34.
- IBM gives conditional nod to joining OSI/NM. Page 34.
- Vadic workstation offers transparent ISDN connectivity on PCs. Page 34.

E-mail by any other name . . .

BY J. A. SAVAGE
OF IDG

SAN FRANCISCO — E-mail is E-mail, no matter what product is used. At least, that is the future scenario and the point of a recent demonstration here sponsored by the Aerospace Industries Association.

The demonstration offered proof of the progress made toward the association's goal of providing any-to-any connectivity between the various electronic mail services and host-based software used by its eight members, according to attendees. The AIA initiated an X.400

interoperability pilot last year to promote such interoperability.

The eight network service vendors involved in the pilot demonstrated that their systems could exchange mail with at least most of the other seven vendors' services via the X.400 standard. Several participants also announced commercial interoperability between their X.400-compliant services and another E-mail service or software package (see story page 35).

"Those guys were at each other's throats a year ago," said Steven York, manager of information exchange technologies at Hughes Aircraft Co. "Now

they've shared long-range plans and market strategies in the same room."

"We didn't want to mandate" which kind of network the aerospace companies had to subscribe to, but interconnections will be required to work with the aerospace industry in the future, he said.

During the demonstration, personal computer users sent electronic messages first to a host-based E-mail server and then out to the E-mail services, which passed the messages on to other services and host-based E-mail systems.

The service vendors that

took part were AT&T, Dyalcom, Inc., GE Information Services, IBM Information Network, MCI Communications Corp., Telexnet Communications Corp., McDonnell Douglas Network Systems Co./Tymnet and Western Union Corp.

"Commercialization isn't that easy," said Richard Miller, chairman of the Electronic Mail Association. "It's not just specs but uniform service agreements, like picking up the phone and getting the same dial tone."

Not yet available is a directory based on the X.500 standard to allow messaging without keying in individual addresses. Individual addresses can still be found only "through a plain old telephone call; you just have to write it down," York said.

Variety key to filling Fortune 500's needs

BY ELISABETH HORWITT
OF IDG

Fortune 500 companies are increasingly turning to multiple vendors to meet diverse computing and networking needs, even though they find multivendor solutions to be less satisfactory than proprietary solutions in terms of cost, reliability, overall system performance and support.

These were some of the results of a recently published study that IDG Communications Research Systems in Framingham, Mass., performed for Advanced Computing Environments, a Mountain View, Calif.,

based consulting firm.

Out of 100 information systems and communications managers surveyed by IDG, 81 had computing equipment manufactured by different vendors; of those, 65.4% networked their multivendor equipment.

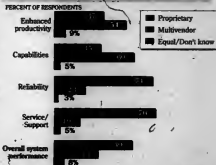
While the use of industry standards such as Transmission Control Protocol/Internet Protocol (TCP/IP) and Open Systems Interconnect (OSI) were of growing concern to multivendor network sites, approximately one-third of the managers at multivendor network sites said that such protocols were being used in less than 5% of their in-

Continued on page 35

Split decision

Multivendor networks can do more than proprietary networks, but a survey of 100 users shows proprietary networks get better support

Which type of solution best meets the needs for each network characteristic?



Source: IDG Communications Research Systems

Continued on page 35

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Illinois moves state business to digital net

Officials seek to save \$50 million with package

ON SITE

BY ELIZABETH HORWITT
ON SITE

SPRINGFIELD, Ill. — After a year and a half of planning and vendor evaluation, the state of Illinois is moving to integrate its agencies' voice and data communications over a high-speed, centrally managed digital network.

The state signed a seven-year, \$102 million contract last January with U.S. Sprint Communications Co. and Illinois Bell and hopes to save \$50 million — approximately a third of its total networking budget — during that time, according to William M. Vetter, manager of the state's Bureau of Information & Communications Services.

Much of the savings will come from consolidating different agencies' networks over the high-speed backbone as well as from more efficient use of bandwidth provided by X.25 packet-

switching services from the two carriers, Vetter said. Several state agencies, including the Department of Public Aid and the Criminal Justice Information Authority, are now on pilot X.25 networks that will run on a digital backbone alongside a Systems Network Architecture (SNA) network that currently supports the bulk of the state's traffic, he added.

The overall purpose of the network, apart from cost savings, is to "make resources available to all employees, independent of their location," Vetter said. Right now, the state has six major independent data networks serving the state lottery, Public Aid, the state police and the secretary of state, among other organizations, he said.

At top speed

The state wants to bring all of these disparate networks — plus the Unisys Corp., Control Data Corp., Hewlett-Packard



Illinois IS manager Vetter leads the state's \$102 million digital agency link.

Co., IBM, Honeywell, Inc. and Wang Laboratories, Inc. systems they connect — into a broadband, high-speed network, amalgamating individual lines into T1 links whenever possible, Vetter said. Supporting the high-speed backbone will be T1 switches from Timpex, Inc. installed at U.S. Sprint's central offices and also at state sites

where traffic is concentrated, Vetter said.

A 24-hour-a-day network control center will monitor, diagnose and configure the state-wide network, using a combination of IBM's Netview and Timpex's network management system, Vetter said. Expanded from the current facility that manages the state's SNA network, the center will be staffed by a combination of state, Illinois Bell and Sprint personnel.

"We expect [the vendor] to provide us with control and diagnostic services way beyond what they would normally provide for both data and voice," Vetter said. For example, the state wants U.S. Sprint and Illinois Bell to provide its network control center with direct access to more complete information than usual about lines and switching equipment.

Vetter is writing for IBM to deliver a Personal System/2-based offering, still unannounced, that will "allow us to go around computer systems" — even non-IBM systems — to monitor the lines running out to terminals, modems and other devices. "Normally vendors will have nothing to do with anything beyond" the equipment that belongs to them, he added.

The U.S. Sprint-Illinois Bell team was awarded the contract instead of three other finalists: AT&T and Arthur Andersen, GTE Corp., and MCI Communications Corp. and IBM, Vetter said.

"Not to say that AT&T won't sell us anything; we will use them for carry-over if facilities we have get full," he said.

Among the state's future network applications is a pilot video network that will support applications such as teleconferencing for the state government and an Integrated Services Digital Network (ISDN) pilot that Illinois Bell will implement.

"We're like anyone else; we haven't yet figured out what needs ISDN will fill," Vetter said.

IBM gives OSI forum tentative nod

BY ELLIS BOOKER
ON SITE

IBM said last month it would join the Open Systems Interconnect/Network Management Forum (OSI/NMF) if the group modifies its bylaws governing the intellectual property rights of forum members.

It was a significant step for the 11-month-old group, which is seeking a multivendor network management standard that is based on the international OSI model. From its founding eight members last July, OSI/NMF has grown to 70 members.

IBM's green light came on the heels of the first specifications to be released by the forum. At its first annual meeting recently in London, the group unveiled specifications for two messaging components: a reliable communication among network management systems from different vendors.

Forum Secretary Ian Sugrue said the group's three-page intellectual property agreement has been a source of concern to other forum members in the past. "Because we're not a standards body, we formalized these patent issues in the agreement," Sugrue said.

The agreement defines the types of documents that can be contributed to the forum and states that if a contribution contains proprietary information, other forum members do not have rights to it. However, the agreement also specifies that if a proprietary technology is used in

one of the forum's standards, the source code must be made "on reasonable terms and conditions" for licensing.

If IBM joins the forum as planned, Digital Equipment Corp. will remain the sole holder among the leading computer vendors. Both vendors have said they would like to see the forum coordinate its efforts with those of other standards bodies, particularly the European standards body SPAG and the Corporation for Open Systems. The forum recently announced formal procedures for such coordination.

DEC is "still determining how the forum relates to these groups," said DEC network management marketing manager Anthony Vicia.

Across the board

Like the International Standards Organization (ISO), OSI/NMF is working on specifications for the five capabilities of network management systems — fault detection, configuration of remote devices and links, accounting, performance monitoring and security.

However, forum members are dedicated to agreeing on and implementing a workable standard, based on a subset of OSI protocols, to ensure interoperability among their different network management systems as soon as possible. The OSI protocols provide too much flexibility in terms of possible protocols to ensure interoperability among compliant systems, industry sources said.

"We're trying to deliver value to customers as soon as possible. We'll be there two years in advance of ISO," explained Dave Mahler, a network management product marketing manager at the information networks division of Hewlett-Packard Co., and a member of the forum's board of directors. If the ISO standards, due to be formalized in the 1992 time frame, are incompatible with the forum's approach, the latter will revise its specifications to bring them in line with the ISO's, according to Mahler.

With the two specifications, Sugrue predicted, developers can begin writing applications. "You'll start seeing them in the first quarter of 1990," he said, adding that beta tested versions should be available in the fall of that year.

In addition to its Services Specification announcement, the forum also said that it had added seven companies and that it will begin actively soliciting user participation by inviting customers of its members to roundtable discussions. These meetings, to coincide with the forum's bi-monthly meetings around the U.S., will start this month.

New members to the forum include four U.S. companies: Applied Computing Devices, Inc.; General Datacomm, Inc.; Netlab; and Tandem Computers, Inc. Also joining were Canadian telecommunications company Canada Data Ltd., Sweden's Televetel Sweden and the French phone company, France Telecom.

Vadis station allows ISDN-PC connectivity

BY ELIZABETH HORWITT
ON SITE

Richardson, Texas — An Integrated Services Digital Network workstation product announced by Vadis, Inc. last month promises transparent ISDN connectivity using existing personal computers and IBM Personal System/2s, PC-DOS applications and communications systems. The product is also said to include the first ISDN support for IBM's Micro Channel Architecture systems.

"We got a lot of user feedback: 'We've got all these PC applications that we don't want to change,'" said Max Jensen, vice-president of marketing and sales at Vadis.

Among the Vadis PC series' key attributes are the following: • A multitasking shell for PC-DOS that is said to allow workstations to send or receive files or electronic mail while running a spreadsheet or other PC package in the foreground.

• An intelligent communications board that allows PC-DOS applications designed for slower RS-232 ports to take advantage of the full 64K bit/sec. rates of an ISDN B channel.

• Prewritten utilities that allow PC users to communicate with e-mail systems such as IBM's Professional Office System and MCI Communications Corp. and AT&T systems, as

well as tools for connecting to other E-mail offerings.

• Support of Netview-compatible protocols, which means that LAN users can also communicate via ISDN and PC users can access files from LAN servers.

• Directories that allow users and applications to transparently access remote computer resources and peripherals by entering a password and a name.

• Optional screen sharing, which permits two workstations to view and make dynamic changes on the same screen.

Vadis' ability to link with existing systems addresses a concern voiced by Rockwell International Corp., which is currently evaluating evaluation products for its 6-month-old ISDN network.

The company's Network Transmission Systems Division is concerned with integrating ISDN systems and its current "communications infrastructures" such as electronic mail, according to Jack Tilbury, manager of telecommunications operations at Rockwell. Vadis is one of the vendors whose product Rockwell is considering, he added.

Vadis has no immediate plans for supporting OS/2 or IBM's OS/2 Extended Edition because some of the vendors whose products these systems have yet to reach critical mass, Jensen said.

Round of X.400 tools unleashed

BY ELISABETH HORWITT
OF STAFF

Several vendors announced commercial X.400 interoperability products the week of the Aerospace Industry Association's demonstration (see story page 33). These included the following companies:

- IBM announced that it would provide X.400-based interconnection with MCI Communications Corp.'s electronic mail service, initially as a limited offering to the aerospace industry and possibly as a general offering later on. This will be the first time that MCI provides its users with a connection to another vendor's service. The vendor said it was also testing X.400 interconnection with Telenet Communications Corp.'s Telemail 400.
- Telenet announced that it had successfully completed interop-

erability testing between Telenet 400 and Wang Laboratories, Inc.'s Wang Office/X.400 Gateway.

• Another pilot participant, Dialcom, Inc., announced that it had successfully completed interoperability testing between its Pathfinder/X.400 service and Soft-Switch, Inc.'s X.400 Gateway.

• Western Union Corp. announced that for the first time that it is "actively seeking interconnections" between its own X.400 service and those of other domestic and international carriers. To date, the company has completed interoperability tests with several European and Far East carriers but not with a U.S.-based carrier. Western Union expects to have commercial interoperability with some of the major carriers by the third quarter and the rest by year's end, spokesman Donald Casey said. "This is an important strategic decision for us," he said.

• McDonnell Douglas Network Systems Co./Tymnet intends to announce commercial interconnections by year's end, according to Rand Walker, manager of OnType Plus marketing.

Horwitt

FROM PAGE 33

Mass, specializes in the design of international networks. At a talk before the recent Association of Data Communications Users conference in Boston, Horwitt said by listing key reasons why international networking is getting higher on the priority lists of Fortune 500 information systems departments. These include the following:

- Companies needing to network their U.S. manufacturing facilities with those "outsourced" in other countries.
- The need for U.S. financial services companies to stay in touch with financial centers in London, Japan, Tokyo and Hong Kong.
- Mergers that span national boundaries.
- Companies breaking into new markets and using networks to further their efforts.
- The liberalization of international trade standards, which promise to make breaking into new international markets both easier and more profitable.

But communications managers are not for a surprise if they expect to get the same level of quality, service and bandwidth availability abroad as they take for granted here, Sevcik said. "Yes, there are TATs and T3s to London but not to Nairobi" or other out-of-the-way places, he noted. He told a 5-year-old tale of a PTT that apologetically refused to provide a T1 link to a major bank; the PTT's reply was, "That's all the spare bandwidth we have."

While foreign nations have been "upgrading like crazy" since then, bandwidth is still scarce in many areas, Sevcik reported.

Even X.25 packet switching, supposedly the ubiquitous data communications standard overseas, is not to be found in areas such as Central Asia, India and much of Africa and the Soviet Bloc, although Hungary and Poland are "just opening up," Sevcik said.

That brings us to the question of whether to go with a private carrier or with a public carrier. Let's look at the options.

On the public side, the ideal service is an international public data network whose X.25 network spans the globe without the need for X.75 gateways or maneuverings with different countries' carriers. Users get improved service because technical support people know the

Wireless LANs cut the ties that bind

BY ELLIS BOOKER
OF STAFF

Wireless, radio-based local-area networks have been available for years but have attracted little user interest because of their relatively sluggish speed and susceptibility to radio-frequency interference. But last month two companies debuted souped-up wireless LANs that they hope will get the air buzzing again about this networking approach.

Last month, start-up firm Agilis Corp. of Mountain View, Calif., added mobility to the concept, announcing a family of handheld workstations that use packet radio technology. Meanwhile, O'Neill Communications, Inc. in Princeton, N.J., unveiled its Local Area Wireless Network (LAWN), a modern-size peripheral for desktop computers.

Both vendors use a radio technology called spread spectrum. Developed during World War II for military communications, spread spectrum distributes a radio signal over a broad frequency at low power that re-

sults in less interference and better security than conventional radio, according to its proponents.

Noting that nearly half the U.S. work force operates outside the office, Agilis Chief Executive Officer Ken Biba said, "A large part of this market hasn't been reached. We want to take the sort of applications pioneered inside the office and take them outside." Biba, a founder of networking company Sytek, Inc., started Agilis last December with Grid Systems Corp. founder John Ellensby.

The Agilis workstations, based on Intel Corp.'s 32-bit 80386 and 16-bit 8088 microprocessors, support MS-DOS, Unix and OS/2 and range in size from a paperback book to a phone book. The workstations are composed of modular components, or "alices," that can be handled as needed.

Networking — an Ethernet bus is built into the workstations — is accomplished over a packet radio LAN, which provides connections of up to 1 kilometer out-

doors and 100 meters within buildings, and transmits at 230.4K bps/sec.

Available in August, Agilis workstations will reportedly range in price from \$2,000 to \$20,000.

A more traditional wireless LAN product was introduced by O'Neill Communications. Designed for the small office or work group, each LAWN unit has a four-channel radio transceiver, a microprocessor and memory for storing electronic mail when the computer is turned off. Data transmission is at 38K bps/sec. between LAWNs and 9.6K bps/sec. between the LAWN and the computer through an RS-232 port. Each unit has a range of 100 feet, which can be extended using the LAWN as a repeater.

O'Neill Communications said it is awaiting Federal Communications Commission approval of the product and hopes to begin shipping LAWN for MS-DOS systems during the third quarter. A Macintosh version is reportedly in development.

Sevcik said a firm should opt for a private network over a public service in most situations because "you can engineer the network for your applications," making it more secure, less costly and based on more state-of-the-art packet-switching equipment. Carrier-based networks are based on decades-old technology designed for the old terminal-to-host links, as opposed to real distributed processing, he added. That primarily means

they support speeds suitable for keyboard input but not for bulk data transfer.

Public solutions generally work best for networking situations in which traffic volume is low and restricted to major capital cities. Private networks work best for networks that involve remote cities and/or high traffic volumes, Sevcik said.

Horwitt is a Computerworld senior editor, networking.

NEW PRODUCTS

Local-area networking hardware

The Geneva Group, Inc. has announced its Micro Central Retail Inventory Management System, reported to be a network of IBM-compatible personal computers that are configured specifically for the retail environment.

The system supports retailers that have at least one store that uses NCR Corp. or other scanning cash-register systems, the company said. A network configuration is installed at each network in the chain to automate ordering, receiving, pricing, inventory and sales reporting functions. The base pricing for one store is \$25,000; pricing for additional stores is \$7,500 each. This includes Micro Central Software and a point-of-sale communications adapter.

The Geneva Group
P.O. Box 58996
Seattle, Wash. 98138
206-875-0331

Toshiba America, Inc.'s Information Systems Division has announced a local-area network card designed for Ethernet.

ToshaLink Card will reportedly be available in three models: an 816-bit card, a 16-bit card and an 8-bit card. All were designed for use with the Toshiba portable personal computer product line. The units will sell for \$699 each and are scheduled for delivery this summer.

Toshiba America
9740 Irvine Blvd.
Irvine, Calif. 92718
800-457-7777

Andrew Corp. has announced a Token-Ring copper repeater developed specifically for 4M-bit Token-Ring networks.

The TRR 8218 reportedly regenerates and retimes the 4M-bit Token-Ring signal up to 200 feet between repeaters. Each repeater is capable of regenerating the signal on both the main ring path and the backup path, replacing two IBM copper

Continued on page 36

Variety

FROM PAGE 33

installations, the survey found.

However, only three respondents said that they expected to be using standards to such a small extent five years from now, according to IDC. In addition, five years from now, 22.6% of respondents expect to have standards installed at 100% of their sites, while currently only 3.8% of respondents' companies are using standards based.

Sixty said that standards promotion efforts were very or extremely important to them and to the computer industry. Fifty-two of the 100 respon-

dents said that they expected IS staff costs to increase when multivendor protocols become commonplace. Forty-six said they expected to purchase more equipment after the introduction of multivendor protocols, while 46 said they expected the amount of equipment at their sites to remain about the same.

Companies indicated a strong tendency to look for outside help. When asked which source services or which vendor will service their migration to multivendor standards, 39% of computer vendors, 34% of communications vendor, 39% of outside systems integrator or consultant and 8% an internal IS department.

Continued from page 35
repeaters, the company said. The product uses standard twisted-pair telephone wire with dual RJ11/RJ45 modular connectors for the Ring-In and Ring-Out connections. It is priced at \$795.

Andrew
2771 Plaza Del Amo
Torrance, Calif. 90503
213-320-7136

Local-area networking software

Interlink Computer Services, Inc. has announced connectivity software for workstations that use Sun Microsystems, Inc. Network File System (NFS) protocols.

The NFSconnect software is said to

provide gateway services for Transmission Control Protocol/Internet Protocol networks to IBM mainframes using MVS. NFSconnect reportedly turns the MVS system into a file server, allowing access to most file formats, including sequential, partitioned, direct and virtual storage data sets.

Pricing begins at \$35,950.
Interlink
47370 Fremont Blvd
Fremont, Calif. 94538
415-657-9800

Unisys Corp. has announced new communications software for its Distributed Communications Architecture (DCA) networking environment.

Called Communication Delivery 4R1,

the software reportedly implements the International Standards Organization 8473 Protocol and was designed to ease the network expansion process.

Functions include the ability to specify terminal traffic priorities from the host, partitioned terminal support and improved message-handling capabilities.

The software is set to ship this month, with pricing from \$2,000 to \$78,750 depending on equipment models.

Unisys
P.O. 500
Blue Bell, Pa. 19424
215-542-4011

California Scientific Software has announced a system for designing, building, testing and running neural networks.

According to the company, Brainmaker Version 1.5 requires no programming experience and is an ideal introduction to the neural network field. The latest release has been modified to run in batch mode, allowing users to add neural network capabilities to existing programs. An IBM Personal Computer, Personal System/2 or compatible running MS-DOS 3.0 or later is required.

The product is priced at \$99.95.
California Scientific Software
160 E. Montecito Ave. No. 2
Sierra Madre, Calif. 91024
818-355-1064

Links

Harris Corp.'s Digital Telephone Systems Division has unveiled a system designed to merge voice communications and information-processing technologies for the voice information services industry, the company said.

Dubbed Voiceframe, the platform is said to support a wide variety of intelligent telephone-based applications, including enhanced customer service, intelligent call routing via database inquiries and Touch-Tone-driven transaction processing such as telebanking services.

The product is a network-class switch based on the vendor's 20-20 network tandem-switch architecture and essentially serves as a universal communications controller, the company said. The system is priced from \$50,000 to \$200,000, depending on configuration, and the Harris DTS Voiceframe Business Unit will reportedly provide applications development support and installation support.

Harris
Digital Telephone Systems
P.O. Box 1188
Novato, Calif. 94948
415-382-5000

Technogis, Inc. has expanded its line of SQL connectivity products with the announcement of Sequelink 2.0.

The package is an enhanced set of software modules developed to provide cooperative processing between Apple Computer, Inc. Macintosh computers and host environments on a network, the company said. The latest release reportedly offers a no-wait mode and cursor-catching functions to increase throughput as well as an integrated call for SQL programming. Pricing is based on the number of workstations that require simultaneous access to the server. The cost of a typical Digital Equipment Corp. VAX-to-Macintosh installation is \$4,995 for the server module, according to the vendor.

Technogis
1 Park Place
621 N.W. 53rd St.
Boca Raton, Fla. 33487
407-997-6887

Fibermax has announced an addition to its Magnus fiber-optic backbone system.

Called Fibertail, the fiber-optic tail-cutting product was developed to move a portion of the backbone's traffic to more distant locations away from any node on the base network, the vendor said. The feature was implemented by the release of an interface module for the Magnus FX44 multiplexer as the FX2200 serial chassis, developed for the site receiving the remoted data stream.

Fibertail CC4441 and CC4442 modules and the FX2200 junior chassis are

Continued on page 40

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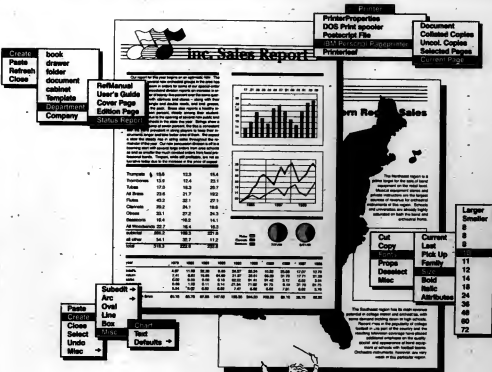
10 South Riverside Plaza, Chicago, IL 60606, 312/346-0642
34 North End Road, Hammersmith, London W14 6SH, England, 01/602-8066
1284 Wellington Street, Ottawa ONT K1V 3A9, Canada, 613/725-9212

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And get ready for
the applause.



Continued from page 36
shipping now. The price of a Magnum FX4400 node ranges from \$4,500 to approximately \$17,000.
Pharmacia
9428 Eton Ave.
Chatsworth, Calif. 91311
818-709-6000

Electronic mail

An electronic mail package with office features has been announced by 21st Century Products, Inc.

Office Minder includes a project manager, alarms, a meeting manager, a resource scheduler and an electronic phone file with dialing features, the company said. The program can be run in random-

access memory-resident mode or in various terminate-and-stay-resident modes. Each server license costs \$595, with no limit to the number of users.
21st Century Products
420 E. Grand Ave.
Beloit, Wis. 53511
608-362-1340

An electronic mail integration product designed to link Apple Computer, Inc. Macintosh computers with Digital Equipment Corp. VAX systems has been announced by Alia Systems, Inc.

Called Mailmate/QIM, the bridging package communicates over Decnet via DEC's Mail-11 protocol to provide a two-way exchange of messages with VAX Mail, DEC's Decnet-based mail product,

according to the vendor.

Mailmate is scheduled for release this month and includes Macintosh network drivers and a network control program, the company said.

Pricing is dependent on the number of users and will range from \$950 to \$9,750.
Alia Systems
221 E. Walnut St.
Pasadena, Calif. 91101
818-792-9474

Diagnostic equipment

Para Systems, Inc. has introduced a personal computer-based software product for the uninterruptible power supply (UPS) marketplace.

According to the vendor, the Network

Manager by Minuteman monitors Novell, Inc. networks or SCO Xenix operating environments to detect power failures in the power supplied to the system.

The product can reportedly perform a system shutdown and can be configured to automatically notify remote network control management centers of the shutdown via a modem. It is priced at \$199.

Para Systems
1455 LeMay Drive
Carrollton, Texas 75007
800-238-7372

A handheld cable scanner and local-area network tester that interfaces with Token-Ring, Ethernet and other cabling schemes is now available from Jensen Tools, Inc.

The Microtest Scanner unit can be used to determine cable lengths, locate cabling faults and test for breaks or shorts in the cable, the vendor said.

The product includes a printer cable, adapter and test connector, software, battery charger and a training manual. It is priced at \$1,495.

Jensen Tools
7815 S. 46th St.
Phoenix, Ariz. 85044
602-966-6241

Modems

U.S. Robotics, Inc. has reduced pricing on its Courier 2400/PS family of 2,400, 1,200 and 300 bit/sec. internal modems for IBM Personal System/2 Micro Channel Architecture computers.

According to the company, the product line will now be priced as follows: The Courier 2400/PS will cost \$599 with MNP Classes 1 through 5 error control and data compression and Hylgrew, Inc. Hyperaccess software; \$499 for the modem with MNP but without software; \$499 for the modem with software but without MNP capabilities; and \$349 for the modem only. Each model's previous price was \$100 higher, the vendor said.

U.S. Robotics
8100 N. McCormick Blvd.
Skokie, Ill. 60076
312-982-5010

Network Devices, Inc. has announced the Ready Link modem, a limited distance (up to one mile) modem that reportedly permits RS-232C synchronous or asynchronous data transmission over twisted-pair wire.

The unit is available in both single-unit and multichannel rack-mount versions. It is priced from \$195.

Network Devices
P.O. Box 1038
8-11 Jan Sebastian Way
Sandwich, Mass. 02563
508-886-5200

Computer Peripherals, Inc. has extended its Hook-Up family of telecommunications products with the introduction of two modems specifically designed for Toshiba America, Inc. laptop computers.

The Hook-Up T-244C and T-24ES Hayes Microcomputer Products, Inc. compatible internal modems offer 1,200 and 2,400 bit/sec. communications speeds. The modems are priced at \$349 and \$399, respectively. A five-year parts and labor warranty is included.

Computer Peripherals
667 Rancho Conejo Blvd.
Newbury Park, Calif. 91320
805-854-7800

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MANAGER'S JOURNAL

EXECUTIVE TRACK



John G. Harrison has been appointed senior vice-president of corporate operations at The American College Testing Program (ACT) in Iowa City, Iowa. Harrison will be responsible for ACT's information systems, operations, publications and central services unit.

Harrison previously served as president of The Wyndgate Group Ltd. in Sacramento, Calif. Prior to that, he was associate director of analytic studies at the California Postsecondary Education Commission. In addition, he has worked at Central Washington University and California State University.

Harrison holds a bachelor's degree in engineering from California State University at Northridge and is working toward his master's degree in public administration at the University of Southern California.



Also joining the staff at ACT is J. David Siebert, who was named vice-president of the information systems division. Prior to ACT, Siebert was MIS manager for the City of Memphis, Tenn.

Siebert, who holds both a bachelor's degree and a master's in business administration from Memphis State University, has previously held positions with AMCA International, Inc., Leader Federal Savings and Loan, Miller Brewing Co. and Missouri-Pacific Railroad Co.

Who's on the go?

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Keeping abreast of knowledge

Encyclopaedia Britannica's Nathan Taylor reads users' needs and more

BY ELLIS BOOKER
ON STAFF

At Harvard University, Nathan Taylor's friends studied computer science while he read the Great Books and pursued an interdisciplinary major toward a degree in social relations. It was an oddly appropriate beginning for a man who would become executive director of corporate computer services at Encyclopaedia Britannica USA (EBUSA).

Chicago-based EBUSA is best known for its 32-volume, 32,165-page compendium, *The Encyclopaedia Britannica*, the oldest continuously published encyclopedia in the English language.

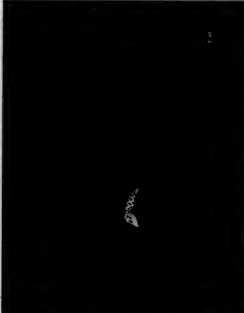
This noble legacy is echoed by the conservative, wood-paneled reception desk that is backed by shelf after shelf of EBUSA's multivolume reference works at the company's main offices on Michigan Avenue in downtown Chicago.

Take the elevator to the fifth floor, however, and a different image emerges: a smartly run information systems department that in April installed an IBM 3090 Model 180 mainframe in a spanking new computer room a few yards from Taylor's office.

The 3090, which now supports corporate IS functions such as sales and accounting, is currently running Prism and DOS, although "we're evaluating a move to MVS," says Taylor, who chooses his words carefully on this and just about every other subject.

After Harvard, Taylor took a six-month computer course, worked as a programmer, a systems analyst and project leader, briefly became a bond investment analyst and then joined Arthur Young as a consultant.

PROFILE: Nathan Taylor



President, Executive director, corporate computer services, Encyclopaedia Britannica USA. Mission: To streamline relationship between IS and users and enhance new technology for the delivery of information to customers.

It was while at Arthur Young that he first entered the Britannica offices, helping to install an editorial text man-

agement system in late 1983. That text database management system, helping to install an editorial text man-

Continued on page 44

Utility firms' No. 1 concern: Systems costs

BY ALAN J. KYAN
ON STAFF

The strategic value of an information system and its ability to meet the needs of employees are not the top concerns for most managers of information systems at utility companies, according to a recent survey.

Instead, out of more than 100 systems managers at electric and gas companies across the U.S. and Canada were polled recently, one in five said the cost of operating their departments is the No. 1 issue that they face today. Meeting needs of employees came in second, and the value of the system placed third. Integration of systems ranked fourth.

"Although use of information sys-

tems can provide a distinct competitive edge, such systems often hinder cost containment," said Leonard E. Wase, vice-president and head of Creamp's energy service practice, which conducted the survey. Creamp is a unit of Towers Perrin, a management consulting firm.

Score three

How do the survey participants plan to respond to the most important issues? Slightly more than half said the evaluation of new technology was a pressing objective. Creamp noted that willingness to evaluate new technology indicates that most managers recognize the advantages and efficiency implications of keeping technologically up-to-date. However, less than one-fourth of the respondents felt that their firm was

well prepared to do the evaluation.

Just over 50% of the respondents listed improving their systems planning as a priority to meet the issues of today. Additionally, for slightly more than two-thirds of the respondents, improving data management was a goal, and 43% said increasing the user's involvement in systems development was very important.

"Although cost of information systems was the primary concern, only half of the respondents plan to reduce system expenditures," Wase said. "In order to be competitive, utilities need to be concerned with cost and productivity at all levels."

Of those who said they did plan to reduce costs, only 27% said they are prepared to take action to reduce spending now.

Groupware success rests on teamwork

MIT Center for Coordination Science to research the human dimension of high-tech

BY JEAN S. BOZMAN
CONSUMER

NEW YORK — The way people work together may be just as critical to the success of groupware as the computer system that provides that group with electronic messaging and word processing software.

To study the human dynamic in computing, researchers at MIT plan to conduct trials of various software packages, collectively known as "groupware." The trials will be run by MIT's newly created Center for Coordination Science at end-user sites.

Work group software supports document revision and group decision making — even if individuals within that group are scattered geographically. "Remote meetings can increase the information metabolism of the organization," said Thomas Malone, associate professor of information technology and management at MIT. "But [the advent of] ad hoc task forces and shifting project teams requires lots of communication and coordination."

Some new tools are emerging to help work groups stay organized, Malone said. Among them are electronic display boards that project typed-in comments, packages that support writing by multiple authors, and electronic mail software that shows comments from group members.

There are even electronic meeting rooms that allow users to collectively brainstorm on an oversized display panel. Such rooms have been built at Electronic Data Systems in Ann Arbor, Mich., and at Xerox Corp.'s Palo Alto Research Center (PARC) laboratory in California.

Among the most controversial products, Malone said, is a package called Coordinator from Action Technology, Inc. in Emeryville, Calif. It allows a work group to "pass around" an electronic document that outlines project activities. The personal computer-based package allows people to "commit" to certain work schedules — something that has stirred up emotions at some early user sites, Malone said.



MIT's Malone stresses human coordination

alone said.

"The system encourages you to be very explicit about when you'll do something," Malone told users at the *Computerworld Perspectives '89* conference here. "People often react very negatively to this, in part because the system is sold with a philosophy, and not everyone accepts that philosophy." Some user sites decided to use Coordinator as a guide rather than let it hold them to specific

work schedules, he added.

A similar though less controversial product is Higgins Group Productivity Software from Enable Software, Inc. in Ballston Lake, N.Y.

The software coordinates E-mail, calendaring and related office-automation products on local- and wide-area networks.

Other packages, such as Broadband Software, Inc.'s For Comment package, allow group comment on a document in progress. Some users would prefer to see this package more tightly integrated with a word processing package, Malone said.

Get the message

Some groupware packages help users "screen" the deluge of electronic messages that they receive daily at their workstations.

The Information Lens, developed as an MIT research project in the last four years, helps users isolate "interesting" or "urgent" messages. An MIT software tool called the Object Lens contains artificial intelligence "rules" that build products such as the Information Lens.

"Most people think electronic mail is useful because it lets them get in touch with one another," Malone explained. "In many cases, it has replaced the telephone call. But users may want to prioritize messages on the basis of importance and urgency. They want to find the interesting messages in a pool of public information."

As E-mail and electronic messaging become more prevalent, the studies at MIT will be geared toward serving as guides for software vendors. Some vendors already sponsor MIT projects, Malone said.

"As researchers, our goal is to build demonstrations that can crystallize ideas that other people, including vendors, can take further," he said.

Clinton Wilder

Don't blame the system

In recent months on the lecture circuit and in a forthcoming book, People Express founder Donald Burr argues the premise that People's downfall can be traced to one factor (and only one factor): the competitive advantage of American Airlines' Sabre reservation system.

"People Express did everything right except one thing," Burr said at the recent *Computerworld Perspectives '89* conference. Because it failed to track its passenger load data with a good computer system, Burr contended, People Express could not respond to American's higher-fare fares.

"We were obliterated by the chip," Burr said.

Burr is a dynamic individual and an engaging speaker, but his argument misses the whole point of competitive advantage through information technology. It was not American's superior chips that knocked out People; it was American's superior business acumen.

The Sabre system enabled American to cross-subsidize its cheap fares with full fares by making the right information available. But the decision to do that has to do with business strategy and not technology.

American is not the U.S.' most successful airline because of Sabre. Sabre is just the most visible example of a company that has been on the leading edge on several airline industry fronts, one of which is technology. It is progressive business managers who see the potential of information technology that make the difference for American.

When Burr was asked what People would have done differently with the proper information systems, he said he probably would have cross-subsidized fares, too. But People's entire marketing image was based on cheap fares all the time, so doing what American did might not have worked.

Unfortunately, too many top executives subscribe to Burr's view that information technology can be the panacea for all ills — and the scapegoat for all failures.

The real key to competitive advantage is rethinking. Reexamine the role of IS and bring IS people together with line managers in partnerships, but also rethink your business. Understand what it is that you're making and selling and how better, more timely information can help you do it better. Add above all, don't run around blaming failure on the fact that the other guy's computer was better than yours.

Perspectives '89 speakers' corner



Hammer

Some were witty, some were provocative, some were insightful. A selection of quotes from speakers at the *Computerworld Perspectives '89* conference:

"Every day we see the deficit of those who don't know by those who know." — Bill

Dunn, executive vice-president, Dow Jones & Co.

"Direction and planning and management of data — that's what we've got to hold onto in MIS. We should let the technology and the applications go and let the business units use it." — Ron Brzezinski, former vice-president of IS, Quaker Oats Co.

"Today's managers have no focus on issues that transcend narrow organizational boundaries. No one cares about the customer, they just want to make their numbers." — Michael Hammer, president, Hammer and Co.

"We don't always understand what the business problem is because we're so busy looking at solutions. We must look beyond the technology to see how what we do is going to basically change our business." — Stephen Zimmerman, consulting managing director, Andersen Consulting.

"We only want some of the people to be superintelligent but not at the expense of having no leadership skills." — Bob Mathews, manager of information technology, General Electric, speaking on the need for workers who are also communicators.



Zimmerman

Alan J. Ryan

Take this job and hug it



Imagine walking into an office and realizing that not only do you spend more of your waking hours there than you do at home — but you also like it better.

Looking around me at my stacks of reporter's notebooks, issues of *Computerworld*, mail and lots of other anonymous paper, I'm pretty sure I like my home better. However, those in the know say that tomorrow's work force — because of the looming labor shortage — will be much more demanding on workplace issues.

Technology watcher Stewart Brand, speaking on "The office of the future" at the recent *Computerworld Perspectives '89* conference, said employers who want to maintain a work force must be more sensitive to employees' needs.

Brand, publisher of *Whole Earth Review*, said that the office of the future — already in existence at some companies — will include conveniences such as physical without facilities, showers and child-care centers.

These wondrous perks notwithstanding, companies must also start to actually listen to employees — a rather novel concept for all but the most progressive firms today. Companies have to realize that employees are not always willing to live and breathe work.

According to Richard Bell of the Arthur Young Management Consulting Group, work burnout, or long hours of overtime and working at home after-hours, are on the "out" list. Excellent benefits, flexible, a casual dress code and time to spend with the family are "in."

Bell says companies should begin to prepare for the future by working on their reputations. If the information systems department carries a reputation of having a revolving door, prospective employees will look elsewhere. If a job becomes obsolete, companies should retain employees for other jobs rather than pay them off. Increased campus recruiting and competitive pay scales also help keep employee rosters full.

It all boils down to the simple fact that management has got to increase its investment in people through training, competitive wages, pleasant surroundings and a touch of compassion.

Sounds great to me. But there is one other item on my wish list for the office: a cleaning crew that can not only vacuum and dust but can also fix my notes and clean my desk without losing or throwing anything away. Call me a dreamer.

Mobilizing IS for competitiveness

BY JEAN S. BOZMAN
ON STAFF

Computers should be used as a leverage point in raising the productivity levels of U.S. workers. But in many cases, U.S. corporations are failing to use them that way, said Larry Chimerine, chairman of WEFA Group, a firm formed by the merger of Chase Econometrics and Wharton Econometrics.

In terms of the overall economy, computers could be used to increase U.S. competitiveness, Chimerine said. "We need a productivity edge to offset the cost effects of our trade deficits," he told information systems executives at the *Computerworld Perspectives '89* conference in New York. But in recent years, productivity gains have been minimal, averaging between 1% and 3%.

Productivity gains would compensate for the U.S.'s higher wage scales and higher cost of production — which gives countries such as Taiwan a competitive advantage.

Yet consumers and the industry alike borrowed heavily during the 1980s — and are reluctant to spend a lot now for IS technology that could boost productivity, Chimerine noted. "We've borrowed some from the future," he said, "and we have to pay it back."

Corporate IS departments are trying to hold down the capital cost of investing in new systems, according to a study by Paine Webber, Inc.

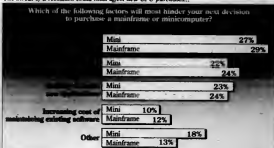
"Information technology spending is level," commented Stephen K. Smith, first vice-president of Paine Webber, who also addressed the conference. "Functionality [in software] is not being developed fast enough to take advantage of the dramatic improvements in hardware technology."

Spending on the rise

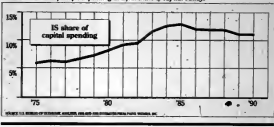
A recent Paine Webber survey of 7,000 IS executives in the U.S. and overseas showed that computer spending is continuing to rise but that IS' share of overall capital spending has remained near 10% since 1982. Smith reminded the audience

IS feels the economic chill

The threat of a recession could mean fewer CPU purchases...



which would help keep IS spending at a flat share of capital outlay



that 50% to 60% of all computer investment is made outside the U.S.

Just a few high-end machines are grabbing the most investment dollars, including the IBM 3090, IBM Application System/400 and the Digital Equipment Corp. VAX series, the survey indicated.

At the microcomputer end of the spectrum, IBM's Personal System/2 barely edged out competing products from Compaq Computer Corp., Hewlett-Packard Co. and Apple Computer, Inc. in IS spending plans, Smith said.

Up-and-coming areas of technology investment include electronic data interchange, expert systems, optical storage

systems and computer-integrated manufacturing systems, the Paine Webber survey showed.

Perhaps the single greatest obstacle to gaining productivity is cutting down on the application backlog that has been plaguing IS operations in recent years, Smith said.

One encouraging sign in this area is the increased use of relational database management system technology — and of computer-aided software engineering application development tools.

"It is encouraging to see so many relational products moving into production environments," Smith said.

More wit, more wisdom

• On business units taking greater responsibility for risk in handling DP matters: "Today, we have to get everyone in the business using data as it happens. There are champions out there [in

the business units] who are willing to stick their neck out on technology to get an improvement in productivity." — Ron Brancatelli.

• "Rearranging the international chess doesn't help. It's a form of nervous recreation." — Michael Hammer.

• On IS' need to communicate with senior corporate managers: "You have to understand the impact you're having on the bottom line. You may be married to the technology, but you won't survive unless you accept that responsibility." — Stephen Zimmerman.

• "Don't waste time evaluating [expert systems] tools — there's only about a 5% difference between them. Pick one and do something with it." — Ed Mahler, program manager for artificial intelligence, Du Pont Co.

• "There are not good times for computer manufacturers, but they are times of good opportunities for us as computer users. Today, lease rates are as low as they've ever been." — Thomas J. Donovan, director of investment banking services, Technology Investment Corp.



Brancatelli

• "A major architectural revolution will come through massive parallel computing. Good-by PCs." — Stewart Brand, publisher, *Whole Earth Review*.

California board: Don't restrict the use of VDTs

BY I. A. SAVAGE
OF NEW YORK

Video display terminals should not be regulated in the workplace, but VDTs used by pregnant workers should have safety guidelines, according to two somewhat conflicting actions taken by California's state government last month.

The California Division of Occupational Safety and Health, known as Cal-OSHA, released a report saying that companies should stress ergonomic design and computer training for VDT users but should not restrict VDT use by pregnant workers. In a hearing before the state's standards-setting board in San Francisco, Cal-OSHA stuck by the report despite a 16-member review panel's majority recommendation against it. The standards board accepted the report but took no action. Standards for VDT use will be considered again in February 1990.

Beaching Cal-OSHA
Representatives from IBM and Hewlett-Packard Co. supported Cal-OSHA's recommendations. Panel members were not available for comment. A Computer and Business Equipment Manufacturers Association (CBEMA) spokeswoman in Washington, D.C. declared Cal-OSHA to be "right on the money."

"It's primarily a comfort issue," the spokeswoman said. "If workers aren't comfortable, they won't be productive, healthy or happy."

Conducting VDT updates
Expected late this year is a National Institute of Occupational Safety and Health study on VDTs that will add to scientific understanding of the issue. "So far, the evidence says there's no problem. If it's contradictory, we'll go back to the drawing board," the CBEMA spokeswoman said.

But that study, which was seven years in the making, neither addresses stress and fertility nor measures electromagnetic radiation, which was identified as a possible problem in the last major study released a year ago [CW, June 13, 1988], according to Louis Glaser, a senior New York-based "VDT News."

"It's not a comfort issue. There are electromagnetic radiation issues that desperately need to be resolved," Glaser said. Also last month, the California Assembly's Labor and Employment Committee sent a bill to the Assembly floor to establish a committee to produce guidelines for VDT use and reproductive safety.

The bill is sponsored by noted Assemblyman Tom Hayden, a former candidate for the U.S. Senate.

Taylor

FROM PAGE 41

The Integrated Publishing System, is still in use.

"We selected a system developed by the Jehovah's Witnesses because they were publishing their pamphlets in 82 languages, and we use a lot of foreign terms," Taylor explains, adding that the DBMS has been significantly enhanced by EBUSA's own staff over the years.

After working as EBUSA's director of planning and development and then as a special projects coordinator for the president, Taylor was made executive director in the editorial department, responsible for budget, planning and new technology.

At the time, another manager headed the corporate IS function, which included responsibility for U.S. sales and corporate administrative applications. But when the editorial and corporate IS posts were combined last year, Taylor got the nod.

Upon my word

With its 44 million words — actually, 50% more when accounting for context and formatting codes — storing and managing the *Britannica* text is undoubtedly the most unusual application Taylor supervises. But the *Britannica* database is just one of several processed through the editorial department's IBM 3083.

To keep track of it all, articles are cross-linked, so that changes are automatically flagged for writers and editors.

A "control panel" at the start of each piece of text reminds editors to review the text or check companion articles.

"Unlike a magazine, an encyclopedia is continually updated, but much of the material stays the same," Taylor explains, adding, "We have to maintain our databases forever."

Taylor takes his accountability for guarding this accumulated knowledge very seriously and will not discuss what he alludes to as "very heavy security, on-line and off."

Taylor has been careful to structure relations with the several hundred users within EBUSA and at the same time open up lines of communication. "We must understand their requests, and they must understand our restraints," he says. To this end, one of Taylor's first innovations after becoming the top information systems officer in the organization was to institute a process for letting users communicate their priorities to the IS department.

"When users want something, they call in a project manager and complete a request," he explains. "On the request they identify, at a high level, the benefits to their own department and the company." A nitpicky yet essential cost-benefit analysis comes later.

Taylor's dealings with his staff point to the collegial feel that, not surprisingly, pervades EBUSA. He meets weekly with his managers, brainstormers with them and using what he unashamedly calls a "Socratic method" for helping them see opportunities and find solutions

to problems.

In addition, Taylor convenes regular half- or full-day brainstorming sessions with his 100-person staff.

To keep the department, which has some 50 programmers, in touch with outside issues, he often arranges technical briefings or presentations from non-IS department representatives and sends clippings from business publications such as *Forbes* magazine around the office.

Taking his own advice

Apparently taking to heart his own advice about staying in touch with business realities, Taylor finished an MBA program at the University of Chicago in June.

Like all publishers, Encyclopædia Britannica must keep abreast of technology, not only as a means of automating a production process but also as a potential new way of delivering information.

Taylor bets, however, that media other than paper, such as on-line information networks, will not supplant Britannica's business in the near term.

"Articles in our [12-volume] *Macropædia* are 50 to 100 pages long," he notes. "People can't read that on-line."

Some experimentation, however, has gone on. For example, a compact disc/read-only memory version of *ED*, Inc.'s *Compton's Encyclopedia*, a reference work for schools, is being developed.

"We see ourselves as information providers, not just encyclopedia makers," Taylor says.

CALENDAR

"Ignoring management is the biggest mistake an information center can make," according to Alice Allen. Allen will lead a one-day workshop on how systems organizations can combat that problem Sept. 20.

The workshop, entitled "Tools for Gaining and Keeping User Management Support for Information Centers," will be held in Bethesda, Md.

Allen, whose about recent work has been focused on end-user computing support and management, is a frequent speaker at industry conferences and has published articles in many computer trade journals.

For more information, contact Charlene Humes at Workshops, Car Communication, 13841 Palmer House Way, Silver Spring, Md., 20904.

Security and Audit Conference, St. Louis, Mo. 9-13 — Contact: Ciba, Inc., Computer Associates International, 711 River St., Garden City, N.Y. 11530-4787.

Reading Professionals Exchange Conference, Los Angeles, July 23-25 — Contact: Cambridge Management, Inc., 10000 Wilshire Blvd., Los Angeles, Calif. 90024.

OSI Systems Management, San Francisco, July 15-16 — Contact: The Institute for Information Management, P.O. Box 261840, Houston, Calif. 77266.

Computer Software Protection and Marketing Conference, San Francisco, July

Computer Science, University of California Extension, San Jose, Calif. 95044.

Levenging the Information Technology Investment Workshop, Newport Beach, Calif. July 19-19 — Contact: The Information Group, P.O. Box 3, Santa Cruz, Calif. 95065-3738.

Managing Organizational Change Program, Boston, July 17-18 — Contact: OGC, Building 18, 2000 Chestnut-Tucker Road, Atlanta, Ga. 30301.

Technology Transfer Conference, Raleigh, N.C. July 17-18 — Contact: The Center for Human Engineering, University of Southern California, Los Angeles, Calif. 90089-0732.

Electronic State Interchange Conference, San Francisco, July 19-19 — Contact: Interchange, 1280 Villa St., Mountain View, Calif. 94041.

IS Management Seminar, San Francisco, July 19 — Contact: Legat, 2 Albany Center, Pittsburgh, Pa. 15212.

Understanding IBM Conference, Cambridge, Mass. July 19-21 — Contact: IBM International, 1 Longshore Circle, Norwalk, Conn. 06851.

CBS '90, London, July 17-21 — Contact: Center for the Study of Decision Processing, Campus Box 1341, Washington University, One Brookings Drive, St. Louis, Mo. 63130.

July 23-29

Information Center Conference and

Reps, Anaheim, Calif. July 23-27 — Contact: Martha Overly, Conference Reps., Margaret Publications, 30 Chaucer St., Boston, Mass. 02111.

June 28-July 28 — Contact: American Production and Inventory Control Society, 600 New Amsterdam Road, Falls Church, Va. 22046-4774.

Summer Institute in Supervising, Blacksburg, Va. July 24-Aug. 4 — Contact: Drexel Book, Conference Center, Broadview Hotel Supermarket Facility, Summer Institute, Campus Road and State St., Blacksburg, Va. 24060-0001.

Spreadsheets: The Essential Guide, Between Powerful Workstations and Lower Cost PCs Conference, San Francisco, July 25-28 — Contact: The Yuletide Inn, 200 Portland St., Boston, Mass. 02114.

Representations Computing in IBM, Valley, Tenn. July 28-31, July 30-31 — Contact: Tenthredine, Suite 301, 6301 Great America Pkwy., Santa Clara, Calif. 95054.

Computer Security Conference, Washington, D.C. July 28-29 — Contact: Digital Consulting, 1 Walnut St., Andover, Mass. 01810.

Advanced Applications for IBM, Houston, Texas, July 28-29 — Contact: NARS, Suite 300, 3000 Shale Drive, Lexington, Ky. 40504.

Chambers '90, Orlando, Fla. July 30-Aug. 4 — Contact: Dave Lendagor, Chambers Press, 2300 Monroe Ave., Cincinnati, Ohio 45221.

Presenting Management For Free Press, Annual Conference, Philadelphia, July 31-Aug. 2 — Contact: Financial Planning For Free Press, P.O. Box 27343, San Jose, Calif. 95127.

ACM Workshop '90, Conference on Computer Graphics and Information Technology, Boston, July 31-Aug. 4 — Contact: Register '90, Conference Management, 1000 Massachusetts Ave., Boston, Mass. 02118.

Comdex/Info Pacific '90, Sydney, Australia, Aug. 1-4 — Contact: The Institute Group, 300 First Ave., Redwood, Mass. 01214.

Telecommunications Conference After Hours, San Francisco, California and Los Angeles, California, August 1-3 — Contact: Telecommunications, Suite 140, 1400 Beverly Hills, Los Angeles, Calif. 90048.

AUG 6-12

International IBM Users Group Meeting, Anaheim, California, August 6-8 — Contact: IBCG, Suite 800, 111 E. Wacker Drive, Chicago, Ill. 60601.

Offices and Regional Information Systems, Anaheim, California, August 6-8 — Contact: IBCG, Suite 800, 111 E. Wacker Drive, Chicago, Ill. 60601.



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- ☐ Asst. President
- ☐ Sr. Mgr. Team - Director of Systems
- ☐ Sr. Mgr. Team - of Programming
- ☐ Engineering Software Engineer
- ☐ Sr. Mgr. Team - On call
- ☐ Data Comm. Network Systems Mgr.

OTHER COMPANY MANAGEMENT

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- ☐ Vice President Asst. VP
- ☐ Treasurer Controller Financial Officer
- ☐ Engineering Systems R&D Team Mgr.
- ☐ Sales Mktg. Mgr.

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- ☐ Consulting Mgr.
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 - ☐ Communications Systems (Public, Utility, Transportation)
 - ☐ Mining Construction Research Training Agency
 - ☐ Manufacturer of Computers Computer Related
 - ☐ Software & DP Services including Software Service
 - ☐ Business Training Consulting
 - ☐ Computer Peripheral Dealer Distributor Reseller
 - ☐ User Other
- Vendor Other (Please specify)

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- ☐ Sr. Mgr. Team - of Programming
- ☐ Engineering Software Engineer
- ☐ Sr. Mgr. Team - On call
- ☐ Data Comm. Network Systems Mgr.

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- ☐ Vice President Asst. VP
- ☐ Treasurer Controller Financial Officer
- ☐ Engineering Systems R&D Team Mgr.
- ☐ Sales Mktg. Mgr.

OTHER PROFESSIONALS

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 - ☐ Educator, Instructor, Librarian, Students
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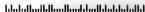
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Move beyond customer service to partnerships with management, users

Prund is associate director and Schiller is director of MIS at Group Health Organization, a staff model health maintenance organization in Washington, D.C.

nevertheless, are only surface manifestations of underlying problems with how IS interacts with the organization in general. Such deep concerns in-

or the priorities of the company, and in some cases, not even being told what they are, IS is expected to deliver the strategic systems needed

magazines document acts that are mill over budget. Account executives, these other underutilized and meet neither individual department's organization's customer service. If IS based serv

MARTEL, INC.

45

systems fail to meet the organization's objectives? Have we not been rigorous enough in our approach? Or does the approach need changing? As always, answers are never as simple as the questions. Like most answers, this one is multifaceted and must be viewed from different perspectives.

In the customer service scenario, IS traditionally has had to respond to the fragmented tactical requirements of other departments' strategic objectives. As a service group, IS has been managed and measured on its response to the short-term demands placed on it. The fundamental problem in using this approach is that, by its very nature, customer service is externally oriented toward the customer and does not easily translate to those functions that serve the entire corporate data infrastructure. The simple fact is that customer service is not IS's only job; there are several subfunctions within IS that must be managed in different ways.

Admittedly, both end-user personal computer support and computer operations and test communications are customer service functions and, to a large degree, should be measured on user-evaluated, customer service performance criteria. However, the systems development function as part of the corporate infrastructure should be evaluated on its technical excellence.

Most would agree that systems are technically excellent when IS gives the users exactly what they ask for. But user evaluations tend to focus on how the system may not be meeting their needs at the time. They often do not take into account that the product was probably delivered as they wanted. They only know that they need additional elements at the time of the evaluation. They may be, understandably, paying attention only to their objectives and not the corporate objectives.

Systems development should be managed as any other hierarchical corporate function. It should also be subject to annual reviews using standards based on IS principles and not solely or primarily on individual user satisfaction. The evaluation of systems development should be similar to the way a Big Eight accounting firm evaluates and audits the corporate accounting function with standard accounting principles to guide the evaluation.

Can't please them all

In fact, the evaluation of systems development as a customer service function has been the largest reason for the failure of the IS corporate data infrastructure. When systems development is evaluated on its responsiveness to the short-term requirements of a user or set of users, rather than the strategic objectives of the organization, failure cannot be too far behind. You can't satisfy everyone.

For example, in determining how to set up a system to pay the claims to companies that supply medical services, two of our users have two different ideas. The chief financial officer suggests trying to get the money from the insurance companies first and then paying the claims. The director of contracts advises paying the claims first and then getting the money from the insurance company. It comes down to a cash-flow concern vs. a vendor-relations issue. The claims-paying system cannot be structured to satisfy both us-

ers, so they must compromise. If they cannot, they will go to the chief executive officer. Under the new strategy, the decision is brought up to the corporate level.

When today's business objectives are based on joint departmental strategies, the needs of the customer should be far outweighed by the organization's objectives. In essence, the corporate objectives become the customer's.

To illustrate the point, consider the following customer service principles on which corporate strategies are built:

- Satisfy the customer.
- Customer satisfaction translates into repeat business.
- Repeat business translates into more sales, and more sales means more profits.

Successful organizations usually incorporate these tenets into their corporate strategies; the problem arises when orga-

BY ITS VERY NATURE, customer service is externally oriented toward the customer and does not easily translate to those functions that serve the entire corporate data infrastructure.

nizations apply these principles internally, especially within the corporate systems development function. Following these rules more often than not takes attention away from the organization. IS departments whose missions are traditionally based on the customer service premise do a disservice not only to IS but to the departments attempting to meet the tactical and tactical corporate objectives.

Learning from others

Learning from the experience of others will help solve these problems. IS as a corporate entity has been around for the past 20 years, a rather short period of time compared with the finance and accounting departments, which have been around as long as there have been businesses.

What can be learned from these long-standing groups? Consider an accounting department with standard debit/credit procedures. These standards usually do not change when one individual wants to do something a different way. A corporate department such as IS or accounting must shift the focus of its processes away from serving the individual needs of departments and managers and toward the organization's strategic objectives. In effect, IS must treat the organization's strategic objectives as if the organization were the primary customer. This is the very essence of the partnership approach.

Although the traditional IS line to the user department has been, "We know the computer, you know the requirements," during the past several years, this concept has been changing. IS managers are now very familiar with traditional business functions and specific vertical markets through both educational and on-the-job training programs. They are, therefore, in a unique position to assist the organization in its strategic planning process. This does not mean intentionally not meeting the user's needs; it means first making sure that the user's requirements are in sync with the strategic direction of the corporation as a whole.

As a corporate function, IS management must review its understanding of current systems development projects in

relation to corporate objectives and evaluate its own mission based on those objectives. In so doing, IS must ensure the following objectives are met:

- Projects satisfy current identifiable business objectives.
- Project objectives fit the strategic and operational plans of the corporation.
- Project objectives fit within IS' mission and strategic direction.

However, for those organizations that hold the outdated view that IS development serves as a support function only, there is one more additional task for IS. It must take the initiative in establishing liaisons with senior executives for joint corporate and IS planning. Additionally, IS management must find ways to influence corporate senior executives, attitudes and perceptions toward IS' view to gain acceptance for information systems management as part of the corporate strategic planning team.

How can IS do this? Try asking. For example, we specifically asked our CEO to include us in the strategic planning process. It did not happen immediately, but it did over time. Most executives, when given a justification for doing something that makes sense, will go along with it.

Of course, this does not mean that IS strategic objectives must be made senior to all other strategic objectives. On the contrary, other corporate objectives must be of primary importance to the organization. However, if IS is to achieve its strategic objectives, the other departmental objectives cannot be allowed to interfere with the principles, standards and approaches of the IS development infrastructure.

In addition, the availability of IS resources must be considered in projects along with all other resources necessary prior to a corporate go/no-go decision. If IS resources are allocated after go/no-go, it becomes a suboptimally driven function rather than a full corporate partner in the operational process of the organization.

Changing corporate strategies will always pose challenges. In effect, continued challenges for IS managers. To meet this challenge, IS must formulate a mission that is aligned with the corporation's strategic planning effort.

Our company's mission statement, based on the partnership approach, is as follows: "IS must actively engage in partnerships with corporate management and staff to jointly plan, develop and apply information resource technologies to support the corporate mission and strategic plan."

To support the IS mission, the systems development function must effectively respond to the general mission by establishing its own set of objectives. These objectives should optimize the organization's

investment in IS and enhance the overall corporate technical advantage.

IS development must lead in the implementation of systems that optimize the organization's systems investment by doing the following:

- Determining strategic approaches for supporting company operations and management decision making with information-based systems.
- Participating with executive management in the development of IS products.
- Leading in corporate systems project planning and policy studies.
- Identifying clear corporate system objectives.
- Developing corporate as well as operational system definitions and specifications.
- Enlisting the active participation and support of all designated corporate project team members.

Implementing, supporting and evaluating strategic and tactical IS products.

Further, IS can enhance the corporate technical advantage by implementing practical and efficient systems through the following means:

- Actively participating in corporate strategic planning.
- Engaging corporate management in IS strategic software and hardware planning.
- Researching, developing, evaluating and incorporating new software technologies to meet planning objectives.
- Planning and designing corporate software architecture strategies and standards.
- Pursuing, identifying and implementing new and/or alternative vendor hardware and software systems that assist in meeting corporate planning objectives.

Time will tell

In the final analysis, time is the greatest innovator. A successful IS development department by its very nature will build a corporate data infrastructure that will be responsive to short-term requirements. However, if an organization is to have the time to build the necessary infrastructure, the strategic objective of building it must have precedence over tactical objectives for IS services.

Over time, organizations have become blinded by the term "customer service" and have used the principles of customer service indiscriminately without understanding its purpose. It is an assumption that is not questioned; it is the postulate on which companies have staked the futures of their organizations.

However, in light of the problems facing information systems departments today, these assumptions need to be seriously questioned.

The notion of IS development as a user-evaluated service function is the major reason for the collapse of the IS corporate data infrastructure. When systems development becomes responsive to short-term departmental requirements rather than long-term corporate objectives, failure cannot be too far behind. Traditional customer service approaches designed to handle short-term requirements are not well suited to handle corporate strategic objectives; a partnership approach is.

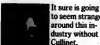


COMPUTER INDUSTRY

INDUSTRY INSIGHT

Nell Margolis

Something's missing



It sure is going to seem strange around this industry without Cullinet.

It's not like we haven't had time to prepare for the prospect. Everybody who can add long months ago that the once-mighty database company's costly reincarnation as a wide-range applications and tools player, coupled with the disastrous effect of its prolonged inability to turn a profit, had cast Cullinet Software into a desperate need for a quick and massive cash infusion. Everybody who can read knew that Cullinet had in fact hired investment bankers Goldman, Sachs to rustle up a deal. Everybody who can think figured that Computer Associates International was among those most likely to buy.

So shock was in scant supply last week when CA made its formal offer. But knowing that Cullinet's corporate end was virtually inevitable is one thing—getting used to its absence will be something else.

Continued on page 68

Prime's knight lifts its visor

BY NELL MARGOLIS
ON STAFF

When New York-based venture capital firm J. H. Whitney & Co. made its eleventh-hour appearance with an acquisition alternative to MAI Basic Four, Inc.'s much-spurned bid for Prime Computer, Inc., the initial industry reaction was, "Where?"

The second was, "Who?"

Whitney is, according to partner Russell Plantzner, "a private

company with an emphasis on the 'private.' " If the deal goes down and Prime ends up owned by a Whitney subsidiary, the corporate-war-torn Massachusetts computer maker will find itself with a venerable pedigree.

What's more, it won't be in wholly foreign hands. Whitney has never made an investment in Prime prior to the approximately \$1.2 billion takeover proposed last week. However, the companies have enough in common

that the Prime project, under consideration at Whitney since early spring, was internally code-named "Roots," according to Whitney partner Don E. Ackerman. Before joining Whitney as a partner in 1981, Plantzner worked his way up the corporate ladder in finance and marketing at Prime. Moving in the opposite direction, Prime Chairman David Dunn started out as a Whitney partner. In 1970, he left to found another venture capital firm; the first investment he made in his new capacity was in Prime. Later, Dunn was instru-



Whitney's Plantzner has roots at Prime

mental in pointing Plantzner toward Prime.

Founded in 1946 by millionaire sportsman and financier John Hay ("Jock") Whitney to spur the U.S. economy through the creation of new corporations, Whitney claims to have given birth to the venture capital industry itself. The company invested the first of its own \$10 million initial capital amount in Minute Mail, then in the development stage of a method for making frozen orange juice concentrate. But it isn't just for breakfast anymore. Forty-three years later, the Whitney portfolio is replete with entries spanning a broad range of computer industry interest (see chart).

The company's investments, Ackerman said, vary between seed capital and enhancement of acquired companies. When Whitney buys, he said, "we buy wholesale, not retail." In every

Continued on page 68

Wordstar exec resigns

Differing opinions for product direction cited

BY RICHARD PASTORE
ON STAFF

After only six weeks as Wordstar USA's executive vice-president and general manager, Marc Bailey abruptly resigned his post last week, partly because of differences in product direction, a Wordstar spokesman said.

Bailey differed with Wordstar President Gar Grinn and the word of directors over "the type of products we will go into in the future and the type of product positioning we will do," the spokesman said. However, he would not elaborate.

Bailey had been at Wordstar for about a year, previously serving as senior vice-president of sales and marketing. Charged with turning around the sales

and marketing side of the firm's flagship word-processing software product, Bailey felt he had accomplished this mission, and it was another factor in his decision to move on, the spokesman said.

However, things have not been turned around at Wordstar, according to International Data Corp. analyst Nancy McSharry. "Their '88 revenue was down about \$4 million from '87," she said. "Their former president, Leon Williams, hasn't been gone from there a year; it looks like they're weeding out some of their senior staff members in an attempt to restructure the company."

Grinn will assume Bailey's duties on a permanent basis. The spokesman said he is unaware of Bailey's future plans.

House that Jock built
J. H. "Jock" Whitney's company has made many venture investments in computer firms, including the following:

- ▶ Storage Technology (Louisville, Colo.): IBM-compatible storage devices
- ▶ Applicon (Ann Arbor, Mich.): CAD/CAM tools; acquired by Schlumberger
- ▶ Compaq (Houston, Texas): IBM-compatible personal computers
- ▶ Cypress Semiconductor (San Jose, Calif.): High performance integrated circuits
- ▶ Seaguard Data Systems (Wayne, Pa.): Disaster recovery services
- ▶ Decision Data (Horsham, Pa.): Computer services

SOURCE: J. H. WHITNEY & CO., COMPUTER SERVICES FUND

Avant-Garde gives up the ghost

BY ELIZABETH NORWITT
ON STAFF

The blossoming of the multivendor network management market has proved to be a blight to Avant-Garde Computing, Inc. A pioneer in that field seven years ago, the Mt. Laurel, N.J., company plans to file for Chapter 11 bankruptcy protection in preparation for acquisition by mainframe management software company Bole & Bobbage, Inc.

Avant-Garde's flagship product, a multivendor performance-monitoring tool called Net Alert, turned a profit for the company from 1982 through 1985, when integrated network management was still in its infancy, according to Avant-Garde Executive Vice-President William A. Angua. The company introduced an expert systems for network managers called NetAdvisor in 1986 but never brought the

product to market, he added.

Avant-Garde's true integrated network management platform, Net/Command, came out in 1987, but by then the company was seeing competition from such heavy hitters as IBM with Netview and AT&T with Unified Network Management Architecture. In addition, there was competition from such network equipment vendors as Data Switch Corp. and Dynatrac Communications, which were able to undercut Avant-Garde "because they could make back on switches the margin they sacrificed on monitors," Angua said.

Net/Command "came in a little after the fact" and too late to allow Avant-Garde to cash in on the burgeoning demand for integrated network management systems, agreed Barry Gilbert, principal at the CommSurv research division of Stamford, Mass., consulting firm TPS, Inc.

"It's a good product with a loyal but small user base," Gilbert said. According to a recent CommSurv survey, Avant-Garde had 2% of the Fortune 500 market in 1988 (see chart).

Avant-Garde's product line fits into Bole & Bobbage's strategic plan to expand beyond mainframe performance management into network performance management, said Carol Kaplan, the Sunnyvale, Calif., vendor's director of corporate communications. A key Avant-Garde product is Net/Command's windows-based, graphics-driven workstation platform, which will run on a Sun Microsystems, Inc. system as of August, Kaplan said.

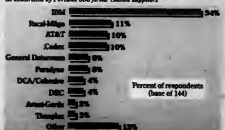
The platform is said to support IBM 3270 sessions in different windows, which will allow users to access either Bole & Bobbage's host-based performance management software or

IBM's Netview, Kaplan said. "Netview is the cornerstone of our automated operations platform. We plan to enhance Netview functionality with our own, and soon with Avant-Garde products," she said.

Bole & Bobbage has agreed to pay \$4 million for Avant-

Garde and to assume new liabilities that the company has incurred. First, Avant-Garde must file for Chapter 11 to clear up pending litigation such as a class action lawsuit from shareholders, Angua said. The two companies hope to complete the merger by Oct. 1, Kaplan said.

Who provides multivendor network management?
Fierce competition from heavy hitters has spelled the end of Avant-Garde, as illustrated by Fortune 500 firms' chosen suppliers



SOURCE: TPS MARKET RESEARCH DIVISION

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Margolis

FROM PAGE 47

Because, for better or worse—and, in its 21 years, it has seen and done plenty of each—Cullinan has always been something else.

From seers to industry analysts to investors, the company widely credited with kicking off

the independent software industry has always been an emotional tale. Tabloid by Cullinan? Sure. Infuriated? Sure. Frustrated? Often. Bored? Never.

Cullinan has been a stock market stunner at both ends of the spectrum. Cullinan mercifully studied his employee roster to serve the bottom line—and then created a severance package that has become a

high-water mark for generosity. Cullinan failed to meet IBM's DB2 onslaught with the product-line changes that many expected. Then, when it seemed that it would never take action at all, it defied expectations by attempting a technologically achieving a sweeping product line metamorphosis.

How can you not miss a company like this?

Few companies in computer industry history have suffered more than Cullinan from the ruthless spotlight of public estimate and from the attempt to undertake bold technological development while satisfying the unrelenting quarterly demands of stockholders. Yet while lesser trials have made artful dodgers of a few corporations, Cullinan has consistently been, as

Chairman John Cullinan is proud of claiming: "the most public of public companies."

Over the past several touch-and-go years, the company has been so prompt in warning stockholders of any possibly disappointing news—often with swift and devastating impact on its stock prices—that some market observers have noted it would take a fast actor indeed to stab Cullinan in the back before it could shoot itself in the foot. Investors might have felt robbed at times, but never lied to.

What, we miss Cullinan? You bet.

And then there's the founder. Like the company he named after himself, John Cullinan is a study in contradictions and a nonstop larger-than-life player. Remember when, six months after his much-publicized retirement, he came roaring back to his then-troubled company, ousting his hand-picked successor?

Asked what the software industry is likely to look like five years from now, most savvy observers will reply, "I don't know." I'm going to stake my claim to candor and smarts right now: I don't know, either. But we do know one thing—whatever the landscape ends up looking like, Cullinan/Software, Inc. of Westwood, Mass., won't be there.

Yeah, I know all the reasons why it shouldn't be there.

Cullinan missed the market.

Cullinan missed the boat.

Cullinan missed the brass ring on its own awesome technology turnaround by not being able to afford it.

Could be. But nevertheless, I'm going to miss Cullinan.

Margolis is Computerworld's senior editor, industry.

SCIENCE/SCOPE

A new microcomputer-controlled wire bond pull tester will enable manufacturers of hybrid microcircuits to perform fully automatic non-destructive pull testing of wire connections. Hughes Aircraft Company's automatic pull tester, designated Model 2600, features advanced vision and machine capabilities. Flawless testing of each wire is assured by gathering data on wire location from three sources: the global wire bond program, the wire bonder itself, and a wire path detection vision system that actually "sees" the wire being tested. In contrast to traditional manual pull methods, the Model 2600 will require fewer operators, completely log each hybrid under test by serial number, and assure one hundred percent visual and mechanical testing of every wire.

A computerized, voice-output system will automatically pick the proper radio network and frequency, and talk back to the air crew of an advanced helicopter. The Communications and Identification Subsystem, under development at Hughes for the U.S. Army's Light Helicopter Experimental (LHX) Program, also includes an over-the-horizon, high frequency communications radio with an anti-jam feature. The subsystem has a number of radio frequencies that can be used under a variety of conditions, including ultra high frequency and very high frequency FM and AM channels. By switching channels, the subsystem reduces the chances of enemy jamming interrupting critical communications.

A computerized inventory system that can locate equipment companywide by performance parameters and availability may control costs on new programs. Hughes' new Equipment Screening by Performance Specifications System can identify, locate and re-deploy existing equipment such as test instruments and oscilloscopes. Inventories can be searched based on performance parameters or substitute equipment—for example, plug in modules that will work with an existing base unit—can be located. The system has the potential to reduce capital equipment expenditures at Hughes 2 to 10 percent annually.

A communications system for increasing the effectiveness of guided weapons has demonstrated a launch success rate better than 99 percent and a mean time between failure rate that exceeds specifications by 300 percent. The system, a Hughes AN/AQX-14 Data Link, permits flexible remote control of the GBU-15 guided weapon by an operator in the launch aircraft or another aircraft. The Data Link also allows final target acquisition to be deferred until the weapon is closer to the target area, enabling the launch aircraft to establish even greater standoff range. More than 2,500 AN/AQX-14s have been delivered to the U.S. Air Force and international customers for use in high performance aircraft.

Hughes is seeking experienced engineers and scientists to design, develop, and produce Hughes' new line of body-stabilized HS 601 communications satellites. Openings are in the fields of: software, computers, and data processing systems; electrical components, microwave/RF communication systems development; on-board spacecraft electronics and control systems; satellite design, integration, propulsion, and electrical power system development; spacecraft manufacturing, systems test and evaluation; GAs applications R&D. Send your resume to Michael Martinez, Hughes Space & Communications Group, Dept. S3, 344/A300, P.O. Box 92919, Los Angeles, CA 90009. Equal opportunity employer. U.S. citizenship may be required.

For more information write to: P.O. Box 40000, Los Angeles, CA 90040-0000

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HUGHES

Subsidiary of GM Hughes Electronics

Prime

FROM PAGE 47

case, Ackerman said, "our object is to build a rapidly growing, profitable company." His firm, he said, has no interest in so-called "pure asset" deals in which companies are bought partly or wholly for resale. MAI Chairman Bennett LeBow is known as an asset player.

Such conviction notwithstanding, some analysts speculated that Whitney may sell Prime's minicomputer business and focus on building from its less-endangered computer-aided design and manufacturing base. In line with its resolve to shape up rather than ship out its investors, Whitney usually puts a partner on the board of an acquired company. While no firm decisions have been made, a Whitney spokesman confirmed that Planitex is most likely to succeed to a spot on Prime's board if the deal closes.

Sybase to scintillate in RDBMS galaxy

BY PATRICK WALZETNYAK
SPECIAL TO C/P

EMERYVILLE, Calif. — Relational database management software maker Sybase, Inc. is shooting for the stars.

The alliance that made Sybase the database heart of Microsoft Corp. and Ashton-Tate Corp.'s SQL Server product, accelerated the RDBMS out of the "company to watch" atmosphere and into the tail of the Oracle Corp. comet as the venture most likely to emulate Oracle's rapid growth pattern.

Even prior to the alliance with Microsoft and Ashton-Tate, the Sybase RDBMS, developed in 1984 by former Britton-Lee, Inc. executives Robert Epstein and Mark B. Hoffman, had already gained a following through a succession of OEM deals with minicomputer vendors.

Recently, the Space Flight Operation Center of the Pasadena, Calif.-based Jet Propulsion Laboratory chose Sybase for use in a radar mapping system of the Magellan probe of Venus launched in early May by the space shuttle Atlantis.

Now industry speculation is focusing on a Sybase launch into the public market. Market analysts agree the time is ripe.

Richard A. Shaffer, president of New York-based consulting firm Technologic Partners, said there is no question in his mind a stock sale is in the cards. The only question is when. Shaffer said, adding, "the stock market is not kind to technology companies right now."

Positive predictions

Likewise, Robert Anderson, an analyst covering the RDBMS market at San Francisco-based Sutro & Co., predicted an initial public offering (IPO) for the firm, possibly much sooner than most observers anticipate. "I wouldn't be surprised about a Sybase public offering before the end of the year, especially in light of the current condition of the stock market," Anderson said.

Sybase, which reported revenue of \$24 million for fiscal 1988 with "minimal profit," eventually will explore that venue, but it is not a top priority, according to Hoffman, the company's president. "When you can get liquidity and raise money at the IPO [rate] or at better valuation in the open market, why go public?" he said.

Right now, the focus is on the increasingly important competition for attention in the market for database products. Shaffer termed Sybase the strongest database start-up in the past five years. He ranked it among those strong new companies that ride the crest of a technology wave, much as Sybase's competitor Oracle Corp. did in the minicomputer market during the early 1980s.

"Sybase will do the same with networked microcomputers," Shaffer said. "[But] they're not in virgin territory. They have plenty of competition."

Among Sybase's stiffest competitors is Oracle, a company that has shown a tremendous annual growth during the steadily booming RDBMS market of the past few years.

"Oracle is everybody's worst nightmare, and it's by design," Shaffer said. "They have a good product, an excellent marketing strategy and they're ferocious workers. Their attitude [toward competi-

tion] is 'We are going to eat your lunch.'"

In a recent interview, Oracle Marketing Vice-President Peter Tierney singled Sybase out for scorn, claiming that the competing database product is not compatible with ANSI's second-generation standard for SQL. Epstein, executive vice-president of Sybase, countered that the revised standard has yet to be finalized and suggested that Oracle would be better off paying attention to its own compatibility strategy.

Anderson predicted that the client-server architecture database market targeted by Sybase is "ready to explode" and

projected a compound annual growth rate of more than 15% during the next three years, from approximately \$200 million to some \$2 billion.

"Sybase is one of the new rising stars," said Don New Jr., senior analyst of software research at Santa Clara, Calif.-based market research firm Infocorp. Ness credits Sybase's bright prospects in part to the company's particularly focused approach and singled out Sybase's alliance with Microsoft and Ashton-Tate, which are marketing an OS/2 version of the Sybase database called SQL Server, as a wise move on the firm's part.

"They realized their limitations, and they were able to focus on their strengths — the product itself and direct sales,"

Ness said.

Sybase does not expect to realize a net profit for portion of its revenue from the deal, Epstein said. However, the firm expects customers who buy into SQL Server will in many cases opt to use the Sybase product on other platforms, he added.

So far, Sybase has been able to forge ahead with private investment money. Menlo Park, Calif.-based Hambrecht & Quist Venture Partners holds the biggest block of Sybase stock, amounting to about a 14% share, Hoffman said. In addition, strategic ally Ashton-Tate Corp. and Apple Computer, Inc. have equity investments in the database maker.



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Apollo trimming may trigger movement

BY ELISABETH HORWITT
CW 1249P

Hewlett-Packard Co., which just announced that it would be trimming the fat from its recently acquired Apollo Division, may find it hard to keep from losing some of the meat as well, according to one key employee who recently left of his own accord.

HP stated last week that, following a study of the Chelmsford, Mass., workstation vendor's work force, it had decided to retain all but 100 employees, whose jobs were not "normally needed" in product

divisions. An additional 50 employees will be shifted elsewhere in the company, HP said.

Marketing jobs untouched

According to Apollo's marketing head James Murphy, no marketing jobs were eliminated. The employee cuts, he said, came in corporate support areas such as finance, administration, information services and law.

Two weeks ago, HP lost Mark Hatch, who was directly responsible for marketing Apollo's distributed platform, the Network Communications System (NCS),

and heavily involved in Apollo's participation in the Open Standards Foundation.

Hatch, formerly Apollo's portable software products group manager, left the HP division June 8 to become vice-president of marketing for Netwise, Inc., in Boulder, Colo.

Netwise one of few to offer RPC

Netwise is one of the few vendors other than Apollo to offer a remote procedure call (RPC) product, which provides the glue for a distributed networking environment such as NCS.

Hatch said he joined Netwise because

he sees it as a young, fast-growing company where he can make a direct impact. Apollo was that kind of company 5½ years ago when Hatch joined it, but becoming part of a much larger company "makes it a bit less exciting," he added. Prior to the acquisition he said, "I was dealing with VPs and occasionally [former Apollo Chief Executive Officer] Tom [Vanderlicke]."

HP's challenge will be to "continue motivating young, aggressive people who joined Apollo because they wanted to make an impact on the industry," Hatch said. "They need the opportunity to grow," he added.

Apollo employees are nervous now, Hatch reported. He added, however, that he knew of no one else with definite plans to leave.

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IN BRIEF

Growing . . .

IBM paid \$6 million for a minority interest in White Plains, N.Y.-based image-processing applications developer Image Business Systems Corp.

Self-service transactions and security automation specialist Diebold, Inc. acquired assets including existing service contracts and service parts inventories from the Payment Services Division of Electronic Data Systems Corp. Terms of the purchase were not disclosed.

Going . . .

Honeywell Inc. announced plans to reduce its work force by approximately 250 jobs, primarily through layoffs at the company's Colorado Springs-based semiconductor facility.

Bolt, Beranek and Newman, Inc. said that it will phase out its Denmark-based BBN Communications A/S unit, a move expected to result in the termination of approximately 200 employees.

Wang Laboratories, Inc. intends to sell off its Stirling, Scotland-based PC manufacturing facility, according to a company spokesman. The plant's functions will be folded into those of Wang's Limerick, Ireland-based plant. The Stirling plant currently employs 239 people.

Gone

Efforts at restructuring Domain Technology, Inc. last week resulted in a Chapter 11 filing for the maker of this firm's line of Winchester disk drives. A company spokesman said that Domain expects to continue operations while it searches for willing buyers or other sources of working capital.

Data General Corp. sold its Sunnyvale, Calif.-based order fabrication plant to Rohan Co. subsidiary Rohan U.S.A., Inc. DG, which expects a \$6.3 million pretax gain from the sale, will stay on in Sunnyvale as Rohan's tenant.

Making the most of placement professionals can provide a career edge



The most important aspect of the process is your relationship with the individual placement professional rather than the firm, according to Ken Gorman, senior section manager for the international systems group at

Maintaining control is particularly important when dealing with high-level positions. Make sure that the placement professionals accommodate your active involvement in your job search. For instance, Gorman insisted that the placement professionals consult with him before giving

- ✓ Develop relationships with individual recruiters
- ✓ Consider working with several firms rather than just one
- ✓ Maintain control over proposals
- ✓ Be wary of circumventing proper recruitment channels
- ✓ Know when to approach a headhunter
- ✓ Take advantage of advice and help

In general, recruiters are more receptive to job hunters.

Raddling is a Newton, Mass.-based author specializing in business and technology.

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TRAINING

Company testing can pay off

Stand-up lectures gain substance from borrowing CBT testing methods

BY BILL SERRILL
SPECIAL TO CWT

There is an almost universal feeling in the information systems training community that students hate to be tested. Opponents of testing argue that students feel threatened by tests, that testing is unfair and that it is of little real value. In addition, because testing must reflect equal employment opportunity standards, the personnel department must become involved in the lengthy process of development of tests. It is under these broad generalities that the training community has consistently and studiously avoided using formal testing.

However, testing is one of the few effective yardsticks we have for measuring training and educational success levels. The validity and necessity of testing is indisputable. The academic world has relied on this approach for centuries; doctors, lawyers and police officers are tested before earning their certifications.

It is not a test's function but rather its form that needs re-

shaping. Nowhere is the cry for reform sounded louder than from "blue book" victims — those who must endure formal written exams. Educators delivering stand-up lectures and other teachers who use formal testing methods would do well to follow the lead set by trainers who embrace computer-based training (CBT).

Surveys that I've conducted show that students find CBT a nonthreatening, fair method of testing by which they learn a great deal. Personnel departments are certainly not involved. This form of testing obviously works. What is the difference between training in a computer milieu and using tests in the lecture environment?

The way it is

The most obvious difference is in how the test data is used. In the CBT "pre-test" mode, the results allow the student to skip over material already known. In the "post-test" mode, the findings direct the student back into any areas of the course material requiring further study. CBT

students find both of these test techniques to be nonthreatening and valuable learning tools. Further, CBT students generally feel that while their answers are recorded, they will not be used against them in the future; history has shown this to be true in most firms.

IT IS a phenomenon of training that students who know they will be tested put more effort into class. They learn more and, in their opinion, get more out of the class.

We can replicate at least some portions of CBT testing to improve classroom performance. Pretesting could give an instructor a better profile of students in the class, for example. Selected material could be omitted, added or covered after class to address the needs of the students more appropriately.

Post-testing at the end of major modules in a lecture class could provide the instructor with information on what areas require review or more clarification.

and a measure of the effectiveness of the training.

In my experience, students who know they will be tested put more effort into class. They learn more and, in their opinion, get more out of the class. In addition, by relating the results module by module to the final critique forms, testing would give training management a much more precise picture of the quality of the classroom experience. Because this type of testing emulates that of CBT and is

your eligibility for certification. Borrowing this idea, students who have completed courses in Cobol or TSO, for example, could sit at a terminal and apply what they have learned under the eye of a professional trainer. The students could then be certified at levels matching their demonstrated abilities.

The down side of the check-ride technique is that it is an administrative nightmare that requires careful scheduling and perhaps borrowing of resources from outside the training organization.

The check ride also could be used to identify strengths and pinpoint weaknesses of new employees. Unless you want a violent reaction from your personnel department, however, it is not recommended that this form of testing be used as a hiring tool. Within the organization, the check ride is best used to select and match individuals with new projects.

Testing has had a bad reputation for some time. Perhaps it is time to take it out of the closet, polish it up and use it effectively in the commercial world.

Serrill is a vice-president at Data Base Management, Inc., a subsidiary of American Management Systems, Inc. in Manchester, Conn.

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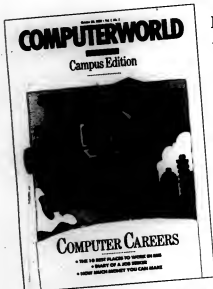


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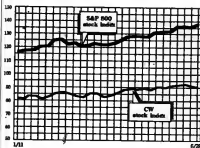
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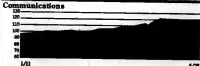


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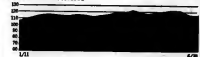
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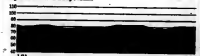
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Computer System

ALUMINUM INDUSTRIES	7	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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Software & DP Services

[illegible]

Semiconductors

ADV MEDIC-CHIRURG INC	17	7	10	0.0	2.4
AMERIGLO OF MD INC	1	1	58.80	-0.3	-4.8
ANALOGIC CORP	11	7	16.25	0.0	2.1
ARCH & TECHNOLOGIES INC	38	11	29	-1.5	-4.6
CHIPS CORP	37	16	26.5	0.0	2.8
UNILOR INC	1	1	6	-1.5	-10.6
MIKRON TECHNOLOG INC	38	19	26	0.0	6.8
MYCROELA INC	80	34	89.75	0.3	0.5
NETL. SEMICONDUCTOR	15	7	7.125	0.0	7.7
TECH. RES INC	15	8	46.375	-0.6	1.3
WESTERN DIGITAL CORP	15	8	6	0.0	1.3

Perinherente

Q	ALUDY CORP	4	1	2,120	0.0	0.0
Q	AMERICAN INC	10	7	0.0	0.0	3.4
Q	ARC INC	1	1	0.0	0.0	0.0
Q	AUTO TROL TECH CORP	1	4	0.0	0.0	0.0
Q	AVCO CORP	1	1	0.0	0.0	0.0
Q	CAMPBELL ELEC ANDRON INC	11	4	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
Q	CANADIAN PACIFIC LTD	1	1	0.0	0.0	0.0
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Leasing Companies

AMPLICON INC	108	11	14.25	6.0	1.8
CAPITAL ASSOCIATES INTL					
NATIONAL INC	8	5	7.125	-0.1	-1.2
COMCONG INC	38	14	28	-0.5	-1.5
CONFIDENTIAL INFO SYS	7	0	0.3	-0.1	-10.2
ICI CORPORATION	17	13	15.5	-0.5	-3.1
PROCTER AND GAMING	8	8	3.025	0.1	2.1
RELATIONS					

[illegible]

Bad movies

Amdahl, 3Com fail to please critics with numbers reports

Rumor that it's the season of sun, fun, movie sequels and rock band tours failed to reach the technology sector of the stock market last week, where the favorites were *Rocky*, *Fury XX* and Dire Straits.

Amdahl Corp.'s warning of a 25% to 35% dive in second-quarter net income — notwithstanding an expected revenue increase of roughly 20% — depressed Amdahl stock, which fell 3½ points to a Thursday close at 16½. 3Com Corp.'s late-week announcement of a fourth-quarter earnings increase less stellar than the Street expected inspired a 1½-point drop; 3Com closed Thursday at 17½. LSI Logic Corp.'s stock fell 1½ points to a Thursday close at 8½ after the chip maker announced that second-quarter income will be lower than last year's, confounding analyst estimates of a healthy increase.

One of the few expectations confirmed, in fact, was that bad news for technology stocks usually creates more bad news for technology stocks. Apple Computer, Inc. wound up the week at 40%, down 3%; Sun Microsystems, Inc. closed at 16%, down 1%; Oracle Corp. closed at 30%, down 1%.

NELL MARGOLIS

Carriers

FROM PAGE 1

carrier in return for special deals on rates.

Communications managers kept citing the same two reasons for choosing to close deals now. First, U.S. Sprint Communications Co. and MCI Communications Corp. have improved the reliability of their networks, largely through the implementa-

fractional T1 and network management, experts reported.

The second factor is a snowball effect brought on by the big discounts AT&T has offered the U.S. General Services Administration and other major organizations through its Tariff 12 service, said Kam Sufi, assistant vice-president of communications planning at Drexel Burnham Lambert Inc. MCI and U.S. Sprint have had to follow suit, further encouraging other major users to hunt for bargains, he added. Drexel, for example, has bargained for discounts of 35% to 45%, Sufi said.

The following are among the deals that have been signed or are about to be signed:

- Merrill Lynch & Co. expects to shave an estimated \$100 million off its telecommunications bill and trim service costs by as much as 50% during the next five years through an exclusive contract with MCI [CW, June 12].

- The state of Illinois signed a seven-year, \$102 million contract in January with U.S. Sprint and Illinois Bell. The contract should enable the state to cut \$50 million, or a third of its total networking expenditures, during that time (see story page 34).
- Westinghouse recently signed up MCI to supply approximately two-thirds of its networking needs during the next five years. The \$75 million to \$100 million



GE's Welland seeks to gain redundancy with three carriers

contract is expected to save 5% off the company's annual telecommunications budget [CW, May 8].

- Drexel hopes by the end of the month to sign up a carrier that will supply a high-speed digital corporate backbone network at discounts of up to 45% [CW, June 3]. The contract is expected to help Drexel reduce its annual networking budget from \$10 million to \$10 million or \$11 million, Sufi said.

Only the beginning

Pit rate-cuts are only the beginning of the special treatment that large users are getting from the interexchange carriers. Whereas users have traditionally won bulk discounts from carriers by promising to pay a penalty when they fail to meet the promised usage level, MCI has actually agreed to pay Merrill Lynch a fine if the carrier fails to meet promised performance levels. Drexel is negotiating for a simi-

lar clause in its own contract, Sufi said.

Customers also do not have to sign an exclusive agreement with any one carrier to qualify for special discounts. Indeed, several communications managers spoke emphatically against the multiple dangers of putting all of their eggs in one communications basket.

General Electric Co. was already an AT&T Tariff 12 and a U.S. Sprint user when it signed a multimillion-dollar contract with MCI last year. The organization's primary reason for using all three: "We want to make sure we have redundant circuits" that travel over different lines to ensure that the same outage does not kill both primary and backup lines, according to Stanley Welland, GE's director of telecommunications.

Carriers are also allowing favored customers the chance to use products and services that have not yet appeared on the market, particularly in the network management area.

But while users expressed appreciation for the way carriers have been meeting their decisions for more direct access to more complete network management information, many have held off from actually trusting carriers with management of their networks.

Some, such as Westinghouse and GE, already have sophisticated private network management systems that they are extending to carrier facilities. Others, such as Merrill Lynch

and Drexel, are still weighing the expense of private network management vs. the danger of depending on a third party.

Whatever deal they strike with the carrier, however, communications managers agreed that the actual process of defining networking needs has been salutary. Said Welland: "Signing a contract forces you to look at the big picture."

Forces converge

What is driving discounting?

- Companies see their rivals getting big discounts. AT&T Tariff 12 and FTS-2000 started the trend; other carriers had to follow suit.

- More users trust AT&T's competitors to provide reliable services.

- Some companies are more cost-conscious now, particularly in such service industries as banking and investment that were hurt by the crash.

- Major carriers are now pretty even in terms of offering enhanced services such as Integrated Services Digital Network, network management, fractionally T1 and virtual private networks.



Goldman Sachs' Campbell

tion of all-digital facilities. "So, there is less risk to going with someone besides AT&T," said Ronald West, a telecommunications manager at New York law firm Shearman & Sterling. The two carriers have also drawn level with AT&T in terms of providing enhanced services such as

IBM factor gives PC LAN users pause

BY WILLIAM BRANDEL
CW STAFF

Just months ago, local-area network administrators salivated over the unknown features of Novell, Inc.'s Network 386, the networking software expected to solve users' personal computer LAN server bottlenecks with a high-powered 80386-based server. However, the IBM factor is now raising doubts in users' minds about how Novell and other LAN vendors will fit into the Systems Applications Architecture (SAA) Officevision blueprint.

Reports from user sites and analysts briefed by IBM indicate that IBM is using the SAA factor to turn LAN administrators away from competing networking software applications. It is still too early to tell if IBM's doubt-raising tactics will compel companies to dump alternative products, but if uncertainty is the indicator, it is working so far.

"Bayan, AT&T and 3Com are all in the same class," said Edward Sund, head personal computer technologist at Weyerhaeuser Co., in Tacoma, Wash. Sund is currently devel-

oping Network 386. "They obviously have to have the same functionality as IBM's OS/2 [Extended Edition] LAN Manager, or they aren't going to work with Officevision."

Sund said Weyerhaeuser has already begun making plans for its Officevision strategy and plans to have it up and running on its IBM 3090, Application System/400 and PC LANs within 18 months. "The seamless integration from the LAN has to be there. Based on that, we'll decide whether or not Network 386 is a good or bad platform," Sund added.

The hunt is on

Vendors are now scrambling to react to IBM's campaign. Officials from 3Com Corp. said they are busy rewriting 3+ Open-Link protocols to work with Microsoft Corp.'s Named Pipes, an interprocess communication facility in OS/2 LAN Manager and a de facto standard.

Mark Cismans, Novell's vice-president of marketing for software products, said Novell plans to release a white paper in the next two months that will dispute IBM's present incompati-

bility claims.

Novell contends that Network is already compatible with Officevision because it can be written to the Advanced Program-to-Program Communications protocol stacks in OS/2. Calkins said a 16-bit version of Network would be available to run on OS/2 by first quarter this year.

However, an IBM spokesman last week said vendors' compatibility claims are bogus. He said that vendors will have to write their software specifically to an application programming interface (API) that will not be published until the fourth quarter of this year. Lacking that, he said, "there's no way they can say they are compatible with Officevision. At best, they could say they can be when the API is implemented. Without the API, it is impossible."

"IBM just wants full control of its accounts, and they are using the first run of Officevision to

push anyone else out," Calkins claimed.

If Novell and other companies cannot soon prove that they will work with Officevision, IBM's play could win sites over to OS/2 LAN Manager, said Jim Hammons, manager of a technical advisory service at The Sierra Group, Inc. "If I see people that Novell will not be ready to react to Officevision, they will get hurt," he said.

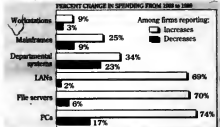
Officevision compatibility "depends upon my LAN decision, and it's a tough one," said Charles Dietz, manager of data administration at Metropolitan Life Insurance Co. in New York. "What's more important? Connectivity to the mainframe or performance of the LAN? I just can't scrap what we have."

Officevision is not the only problem that Network 386 now faces. According to information systems sites that have been placed under nondisclosure by Novell, they are reaping few performance benefits to justify and upgrade to Network 386 and its \$8,000 price tag.

"For a PC, it's not a matter of how many users we can get on the LAN, but bringing a LAN in to fit the department," said a LAN administrator for Boeing Aircraft.

Time to serve

A survey of 106 companies' technology expenditure plans indicate that LANs and file servers are much in demand



*Survey includes firms in banking, finance, insurance and manufacturing

SOURCE: THE SYRACUSE CENTER FOR TECHNOLOGY ANALYSIS

CW STAFF (NEW YORK)

3Com fills in LAN Manager plan

BY ELISABETH HORWITT
CW STAFF

SANTA CLARA, Calif. — 3Com Corp. firm up its LAN Manager-based client-server computing strategy last week by announcing September availability and "on-demand" communications protocol support for its 3+Open LAN Manager 1.1 network operating system.

Also last week, 3Com reported record sales and earnings for its fiscal year ended May 31. Sales were \$385.9 million, or 53% above the previous year's figure, and net income rose 52% to \$34.3 million, 3Com said. However, fourth-quarter gross margins were below par, 3Com Chairman Bill Krause said.

The LAN Manager system is the keystone of 3Com's strategy to provide personal computers running MS-DOS, OS/2 and Apple Computer, Inc. Macintosh workstations with the ability to use a variety of networking protocols to access computer hosts and servers on local-area networks, according to Alan Kessler, director of product marketing for the vendor's Software Products Division.

This makes for increased flexibility for client/server environments in which the front-end workstation provides the user interface and local processing, while the back-end server pro-

vides such resources as databases, high-speed peripherals and communications links.

The market for such servers is due to rise rapidly, from \$2 billion in 1984 to \$11.7 billion in 1994, according to a recent study by Cambridge, Mass.-based Forrester Research, Inc. A significant feature introduced in 3Com's 3+Open LAN Manager 1.1 is Demand Protocol Architecture (DPA), which is said to provide automatic loading of whatever communications protocols are needed to access a given application on a server or host. This shrinks the time such protocols spend in main memory, leaving more room for "big DOS applications [that] sometimes didn't fit" when Version 1.0 was in use, Kessler said.

Hoovering problems

This problem has long plagued 3Com users at Hughes Aircraft Co., according to Mike Uvestad, the General Motors Corp. subsidiary's head of microcomputer and LAN consulting. 3Com's network operating system, along with protocols [that] sometimes didn't fit" when Version 1.0 was in use, Kessler said.

dom-access memory, he added.

However, Uvestad questioned whether DPA will make much difference to Hughes users, who are increasingly running network-intensive applications that need to have communications protocols in RAM. "You don't want to keep downloading from the network to do your processing," Uvestad said.

More impressive to Uvestad was 3Com's claim that the new Version 1.1 of 3+Open LAN Manager takes up 1,00K bytes less memory than Version 1.0, leaving 529K bytes of DOS memory available.

Version 1.1, due out in September, will initially provide on-demand loading of Xerox Corp.'s Xerox Network Systems protocol, which is the basis for 3Com network applications such as 3+Open Mail, Kessler said. Support for Transmission Control Protocol/Internet Protocol is also scheduled for September, while OSI support is due out next year, he added.

The 3+Open LAN Manager Entry System, which accommodates up to five users, is priced at \$995. The Advanced System for unlimited users and 3+Open for 32 users, designed for 3Com's Intel Corp. 80386-based 386 servers, are priced at \$3,495 each, 3Com said.

Data flows freely on X-vendor screens

BY JEAN S. BOZMAN
CW STAFF

SAN JOSE, Calif. — "X" marks the spot where all Unix vendors agree to the same standards. At the Exhibition 89 show held last week, a wide range of computers — including machines from IBM, Digital Equipment Corp., Hewlett-Packard Co., AT&T and Sequent Computer Systems, Inc. — were exchanging data freely over X Window System screens.

Even the competing Unix International, Inc. and Open Software Foundation (OSF) groups agreed that they could both support X Window through participation in X/Open Consortium Ltd., a vendor consortium based in London. Both said they would support X/Open's Common Application Environment standards, which allow end users to cut and paste applications from screen to screen without regard to the underlying operating system.

"OSF and Unix International talk frequently to each other through the X/Open meetings," said Tom Mace, vice-president of marketing for Unix International. "We're developing a working relationship with them, but it's relatively informal. We always hope there will be a rapprochement between the groups, but we don't know if that will ever come."

The X Window System, developed at MIT in the mid-1980s, is a method of transporting user interfaces across different operating system environments. As part of a client-server architecture, the X Window System can read in data from a variety of computers and display it exactly as it appeared on the sending terminal.

Coordinated applications
Exhibitors at the X Window showcase last week were actively mixing and matching applications. Some new methods had personal computer-based status development. Corp. 1-2-3 spreadsheets flickering on Unix workstations, which pleased at least one user from Santa National Laboratories in New Mexico. "I really like using Lotus 1-2-3," the user said, "but most of the computers I work with run Unix."

Several vendors showed MS-DOS applications running under X.DOS from Bantam Systems, Inc., in Mountain View, Calif. X.DOS was used by Sony Micro-

systems, Inc. in Palo Alto, Calif., to recompile 1-2-3 for Unix use, said Athol M. Foden, Sony Microsystems' product manager.

DEC showed its own PC Decwindows product, which displays PC applications in a Windows format for users of the DEC Ultrix or VMS operating systems. Another system, called X.Desktop from DLI Ltd. in Cambridge, England, presented Unix applications as icons that could be grabbed in the style of Apple

A S PART of a client/server architecture, the X Window System can read in data from a variety of computers and display it in exactly the same way that it appeared on the sending terminal.

Computer, Inc.'s Macintosh by using a mouse.

DEC managers believe X Window will make matters easier for end users. "X unifies the Unix design center," said John Haney, corporate development program manager. "Before X existed, end users had to understand how to port applications to other operating systems in the C language." In 1986, DEC decided to base its window technology on X Window rather than on UITS, a proprietary DEC standard, Hard said.

Network Computing Devices, Inc. in Mountain View, Calif., announced support for Decnet on its NCD 16 Network Display Station here. This new product allows end users to display applications running under DEC's Ultrix side by side with those running under VMS on VAX computers.

IBM used its RT workstation as an X Window server for an IBM 3090 mainframe. The high-resolution graphics diagrams on the IBM 5500 display screen were, however, generated under the VM operating system rather than under IBM's mainframe AIX version of Unix. The AIX code supported the X Window display was running on the RT, IBM demonstrators said.

Perhaps the most colorful use of X Window, however, was Sony's Full-motion video — linked to a laser disk player — projected the movie *Top Gun* alongside three Unix applications. "If you're waiting for the results of an especially long, multiply iterative calculation, you'll have something to watch," a Sony spokesman said.

HP replaces low end of RISC line

BY J. A. SAGE
CW STAFF

PALO ALTO, Calif. — Hewlett-Packard Co. announced a 16-user minicomputer last week that serves as the lowest end of its Unix Precision Architecture reduced instruction set computing (RISC) line. The unit replaces the Model 840, which will no longer be sold by HP.

The HP 9000 Model 815S, which can be scaled up to handle 50 users, was introduced in response to customer demand, according to the company. "Cus-

tomers who have larger systems want something smaller," said an HP spokesman. The unit, priced at \$29,500 for a 16-user configuration, is scheduled to become available in September.

One of those customers, PRC Realty Systems, Inc. in McLean, Va., which automates the offices of real estate boards, agrees. "With this, we'll see some of the smaller real estate boards with 16 to 32 users automate," said Steve Tracy, manager of the firm's equipment support.

The new computer may not be the end of downsizing for

HP's Precision Architecture series. "I expect HP to keep pushing the low end lower," said Sandy Galt, an analyst at Santa Clara, Calif.-based InfoCorp. "There's no reason they couldn't take Precision Architecture down to a four-user system," Precision Architecture is HP's implementation of RISC.

The five 9000 series models now support a range of 16 to 400 users. The midrange Model 840 was made obsolete June 1 because of better price/performance on the newer Model 835, HP said.

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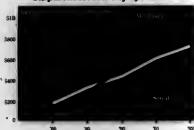
TRENDS

Image Processing

In a recent report released by The Yankee Group, 596 IS managers were polled on the topic of image processing

The paper reduction benefits often pushed by image processing vendors to sell their systems come in third in the ranks of what users really want.

Shipment forecast by system size



Systems of all sizes will experience healthy growth, with medium class systems seeing the biggest jump as more of the buying decisions are left up to individual departments. Most departments still do not want to get stuck with a system that is too small.

Market share by shipment value

Government, which gave the image processing market its first real boost, will not expand as rapidly as other market sectors. Manufacturing and insurance will be the main players in a widely diversified field. Other verticals, such as health and utilities, will begin to capture a notable share by 1992.



SOURCE: THE YANKEE GROUP, CHARTS BY THE YANKEE GROUP

1988
(Total \$45 M)

1992
(Total \$2.3B)

NEXT WEEK

As IBM's AS/400 has swept into the mid-range marketplace, the impact it has had on both the supply and demand sides of application software has been dramatic. Product Spotlight will focus on the world of third-party software for the IBM midrange, providing insight and product information about this changing market.



If you run an underfunded and understaffed charitable organization, how do you possibly afford the luxury of information systems consulting?

The Information Technology Resource Center (ITRC) is a nonprofit group based in Chicago that helps hundreds of other nonprofit organizations in the Midwest with their IS planning and training in the use of hundreds of PC software packages. Meet the ITRC in Manager's Journal.

INSIDE LINES

Punch-card security

Yesiree, that Pentagon is really keeping up with the times. The latest version of its information security regulations describes the rules for labeling classified data, including a section on "ADP punched cards." In case you're wondering, the rule is that "top secret" markings must be on the first and last cards in the deck and the job-control card. However, if you take any cards out of the middle of the deck and don't immediately return them, they must also have classified markings. (When we feel safer already.)

Reading tea leaves

How can you tell that DB2 is strategic for IBM? Simple — IBM isn't working on a follow-on product, noted Tom Sawyer, senior analyst at Codd and Date Consulting Group. With IMS, IBM was always working on a successor product," he says.

No laurel resting allowed

Lotus, out from the burden of shipping Release 3.0, still has to crank out the graphical version of 1-2-3 to fulfill its promise to support IBM's OfficeVision. Latest word from the relieved spreadsheet king is that 1-2-3-3C is basically completed, with bug fixing and code testing left to finish. The product will go into beta testing later this year and will stay there even longer than Release 3.0's four-month beta stint.

Must not have been Version 6.0

On June 26, Oracle proudly announced that Christine Hastie was enrolled in its PC Product Solutions seminar. Oracle was also most appreciative of Hastie's interest in the company. The only problem is that Hastie is not a potential Oracle customer or developer. She happens to be a marketing department administrative assistant for Gupta Technologies, an Oracle rival in the PC Server business. Gupta sources theorize that Oracle's database cranked out mailings based on the criteria "competitors" rather than "prospects."

A thousand times no...

Racal-Milgo, fresh off its acquisition of Interline, has apparently been stalking bigger, richer game with a bid for Digital Communications Associates. But negotiations are stalled following a DCA counteroffer that was way too high for Racal, a source close to the company said.

Marital bliss?

Data Design Associates (DDA) emphatically denies speculation among employees that the company's pending sale to Integral Systems (IS) — which will be finalized within the next 30 days — is the result of divorce court woes. Late last year, DDA founder Dave Lowery's ex-wife Mary sold her shares, representing 20% of the company and her ex-husband built from scratch, to ISI. Subsequently, ISI has purchased an additional 8% of shares from former DDA employees, according to Paul Selegiver, DDA vice-president. When the merger is complete, Dave Lowery will "not be a participant in the new organization," according to Selegiver. "Dave Lowery has chosen this course of action; it was not forced on him," he said.

Oh, yeah? Take that!

Hewlett-Packard, part of the receiving end of Apple's lawsuit challenging Microsoft Windows, this week will introduce a laser-quality printer designed specifically for Macintosh users. The ink-jet HP Deskwriter is Quickdraw-based, works at speeds comparable to the Apple Laserwriter and will have a list price of \$1,195.

They really paid for that jingle? IBM's new marketing campaign kicked off this weekend with the catchy phrase, "How're you going to do it? (Please) P/S 2 it!" Not only is the tag line a blatant rip-off of the "Ghostbuster" theme song, but it's ripe for parody. Our first effort was a little too off-color to print; rather than water it down, we're offering you the opportunity to come up with something clean and funny. Upload your best to News Editor Pete Burdick through our bulletin board, and we'll print the top cut. Tune your modem to 505-626-0214.

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